ImageQuest

L50S(AUO)

TFT LCD Color Monitor

TECHNICAL SERVICE MANUAL

HYUNDAI

Safety Precaution

WARNING
Service should not be attempted by anyone unfamiliar with the necessary precautions on this monitor.
The followings are the necessary precautions to be observed before servicing.

1. When managing this monitor, cover with shield plate to avoid to scrach on LCD surface.
2. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as nonmetallic control knobs, insulating covers, shields, isolation resistor capacitor network etc.
3. Before returning the monitor to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as signal connectors, terminals, screw heads, metal overlays, control shafts etc, to be sure the monitor is safe to operate without danger of electrical shock.

General Information

1. Description

This 15" LCD color display monitor is operated in R, G, B drive mode input.

2. Operating instructions

2-1. Front

Power Switch , Menu, Select, Down, Up, DPMS (Power) LED

2-2. Rear

Input connector (AC & Signal Cable)

2-3. OSD Controls

H/V Position, Clock Phase, Brightness, Contrast, Recall, Color Control, Language, Auto Adjust, Miscellaneous, Auto color, Audio control

3. Electrical Characteristic

3-1. Power Supply
AC/DC - Input Voltage : 90V~264V
Input Current : 1.2 A Max
Input Ferquency : 50 ~ 60Hz
- Output Voltage 12V/5V
Output Current 1.3A(MAX)/1.3A(MAX)

3-2. Video Input Signal

Level : 0.7 Vp-p analog signal(at 75 ohm termination to ground)
Polarity : Positive

3-3. Horizontal Synchronization Signal

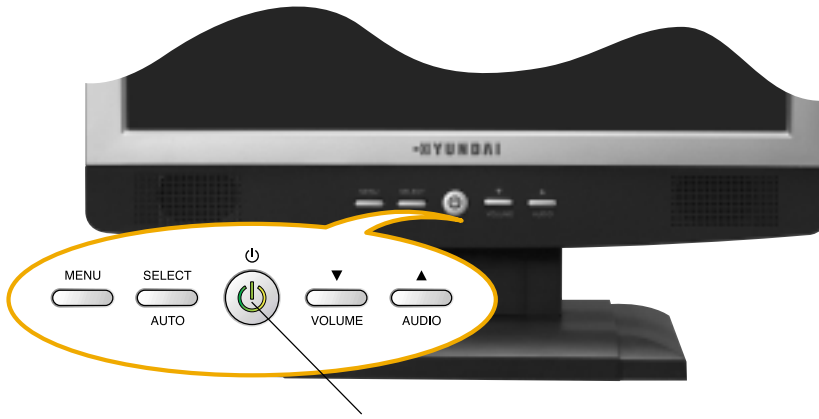
Level : TTL High : 2.4V min
Low : 0.4V max
Polarity : - or +
Frequency : 31kHz ~ 60kHz

3-4. Vertical Synchronization Signal

Level : TTL High : 2.4V min
Low : 0.4V max
Polarity : - or +
Frequency : 56Hz ~ 75Hz

Control Description

Front View



Power Switch / LED Indecator

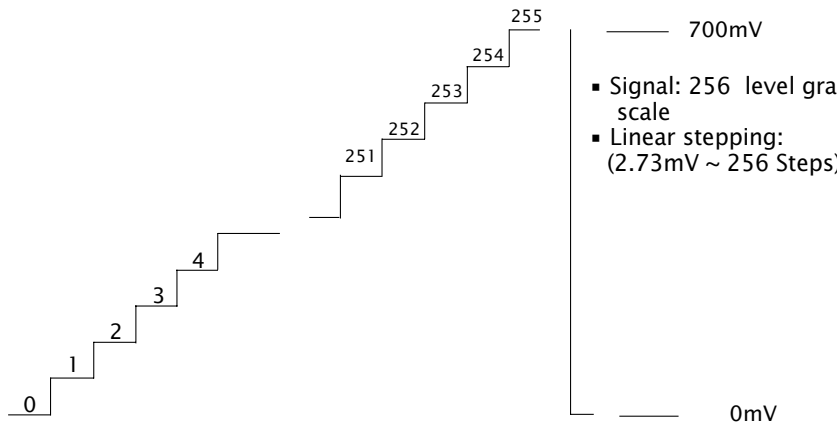
Support Modes

NO	Resolution	H Frequency (kHz)	V Frequency (Hz)	H Polarity	V Polarity	Dot Clock (MHz)
1	720 x 400	31.5	70.0	0	1	28.322
2	640 x 480	31.5	59.9	0	0	25.175
3	640 x 480	37.9	72.8	0	0	31.500
4	800 x 600	37.9	60.3	1	1	40.000
5	800 x 600	46.9	75.0	1	1	49.500
6	1024 x 768	48.4	60.0	0	0	65.000
7	1024 x 768	56.5	70.1	0	0	75.000
8	1024 x 768	60.0	75.0	1	1	78.750

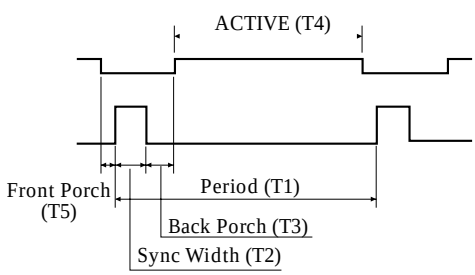
Video Input Signal

Recommended signal are shown below

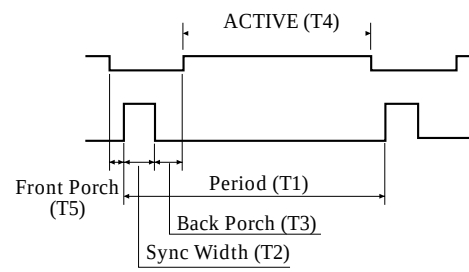
- **Video Signal**
  Video level : 0 to 700mV
  Polarity : positive
  Video Input : RGB separated
  Analog level
  Sync input : H-Sync(TTL level)
  V-Sync (TTL level)
- **Waveform**
  Video input(R.G.B)



• **H-Sync**



• **V-Sync**



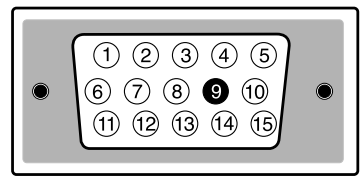
Video Input Terminal

A 15 Pin D-sub connector is used as the input signal connector
Pin and input signals are shown in the table below.

Pin Description

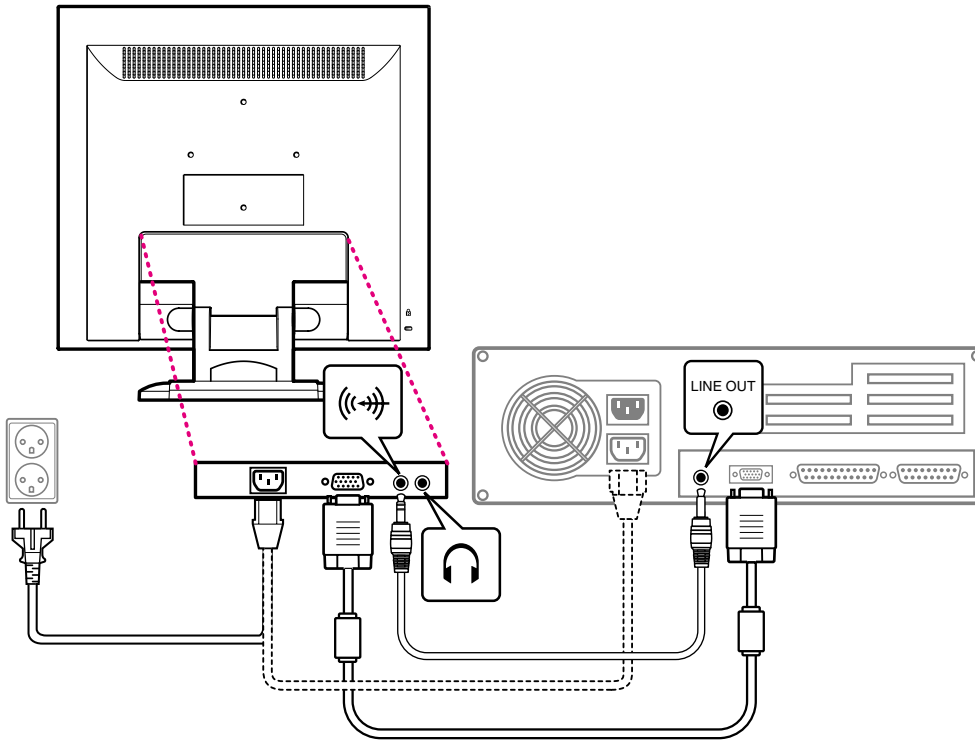
SIGNAL / PIN NO.	SEPARATE SYNC/ DDC 1/2B
1	RED
2	GREEN
3	BLUE
4	GND
5	RETURN
6	RED GROUND
7	GREEN GROUND
8	BLUE GROUND
9	N.C
10	LOGIC GROUND
11	GROUND
12	SDA
13	H-SYNC(TTL)
14	V-SYNC(VCLK)
15	SCL

D-Sub miniature connector



Connecting with External Equipment

Cautions
Be sure to turn off the power of your computer before connecting the monitor.



Theory of Operation

1. DC/AC INVERTER

Input voltage : DC 12V
Input current : 1.2A(Max)
Output current : 8.0mArms(TYP)
On/off cControl Voltage : 5.0V

2. AC/DC ADATOR

This display device shall maintain the specified per formances in the range de scribed below
Frequency : 50/60Hz
Voltage : 90 - 264Vac RMS
The following consumption requirments shall be met:
Power Consumption : 30W(typ)
Current consumption : < 1.0 Aac RMS
Output Specification:
output1 : 12V/1.3A
output2 : 5V/1.3A

3. Audio System

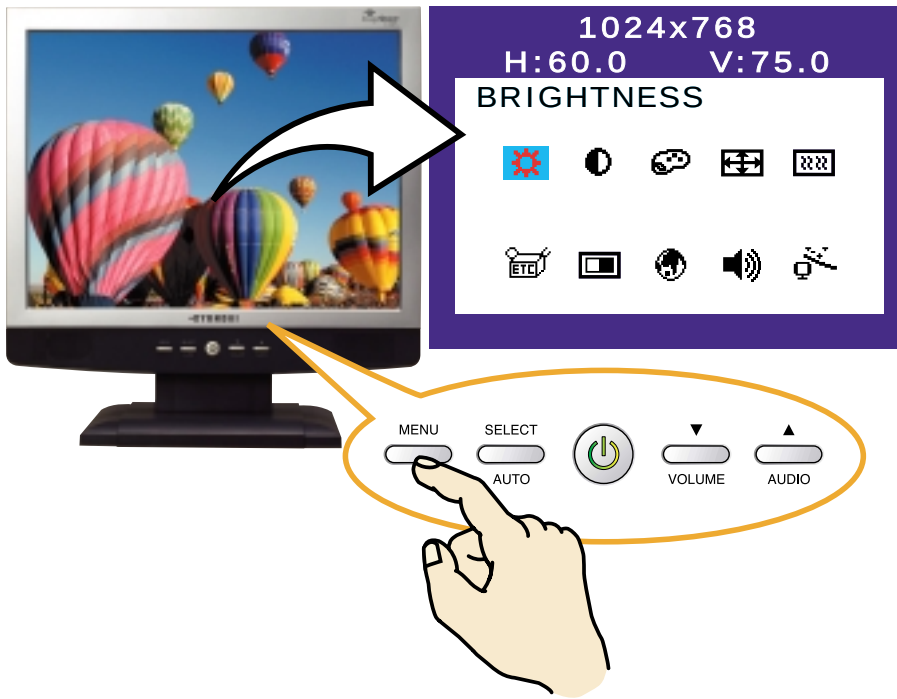
This monitor has a audio system including two micro loudspeakers.
Each of two micro loudspeakers has a 2W(Max) output power.
This system also supports a headphone(earphone) output.
- Auto Signal Input : < 600mVp-p(Max.)
- Auto Amplifiers
  2W+2W Amplifier with DC Volume Control (for two micro loudspeakers)
  RL=8Ω @THD=10% Vcc=14V (min. 10V, max. 18V)
  Dual-Audio Power Amplifier (for a headphone output)
  RL=32Ω @THD=10% Vcc=4.5V (min. 1.8V, max. 15V)
- Speaker
  Micro Loudspeaker Spec.
  Normal impedance 8Ω +/- 15% at 1.0V 1.5KHz
  Resonance Freq. 550Hz +/- 110Hz at 1.0V
  Freq. Range fo ~ 20KHz
  Power Rating Normal 1.0W/Peak 2.0W

4. DPMS MODE

Status	Signal			Power Consumption	Recovery Time	LED Indicator
	H-Sync	V-Sync	Video			
on	Pulse	Pulse	Active	30W(typ)	-	Green
off	No Pulse	No Pulse	Blank	≤ 1W (TYP) 230V AC	Within 3 Sec	Orange

On Screen Controls & LED Indicator

The menu for screen setting adjustment is located in the OSD and can be viewed in one of five languages OSD feature andmain funcrions are as follows:



The OSD adjustments available to you are listed below.

The OSD adjustments available to you are listed below.

BRIGHTNESS
Adjust the brightness of the screen.

CONTRAST
Adjust the contrast of the screen.

COLOR CONTROL
Color temperature affects the tint of the image. With lower color temperatures the image turns reddish and with higher temperatures bluish.

There are three color settings available: Mode 1(9300K), Mode 2(6500K) or USER. With the USER setting you can set individual values for red, green and blue.

POSITION

H POSITION

Adjusts the horizontal position of the entire screen image.

V POSITION

Adjusts the vertical position of the entire screen image.

Adjusts the vertical position of the entire screen image.

CLOCK PHASE

PHASE

Adjust the noise of the screen image.

CLOCK

Adjust the horizontal size of the entire screen image.

MISCELLANEOUS

RECALL

Recall the saved color data.

OSD TIMER

You can set the displayed time of OSD Menu window on the screen by using this adjustment.

OSD POSITION

Adjust the OSD menu's horizontal or vertical position on the screen.

AUTO COLOR

Optimum color setting is auto programmed for user's convenience.

LANGUAGE

You can select the language in which adjustment menus are displayed.
The following languages are available : English, French, German, Italian, Spanish, Swedish, Finnish, Danish, Portuguese, Dutch and Japanese or chinese.

AUDIO

VOLUME

Adjust the audio volume level.

AUDIO

This menu is used to choose audio on or off.

AUTO ADJUST

You can adjust the shape of screen automatically at the full screen pattern.

Getting Fine Picture

Step 1. At first Display, a full screen, such as, Window's background or "H" character should be achieved by using Editor (ex: Notepad. exe)

Step 2. Adjust the screen to the center of the Display(LCD), by using the top and bottom display controls. (i.e.Using V-Position Adjust menu)

Step 3. Adjust the screen to the center of the Display(LCD), by using the right and left display controls. (i.e.Using Clock and H-Position adjust menu)

Step 4. Adjust the Clock-phase until the "H" Character displays clear.

Step 5. Using the Contrast. Brightness, and Color Control menu, set the color to your preference.

Step 6. When you finish the adjustment, you can save your settings by pressing on the menu until the OSD screen has disappeared.

Factory Setting & EEPROM Initialization Method

Factory Setting Method

- Connect the signal cable and power cable to the LCD monitor.
- Press Power switch with pressed MENU key.(Menu key + Power key).
- Then, a User can change the factory setting value in OSD menu.
- Save changed value and Turn off the power s/w.
- Turn on the power, adjust the screen.

Specification

LCD Module	SIZE	15" Viewable diagonal
	Dot Pitch	0.297mm
	Brightness	170 cd/m^2 (MIN), 250 cd/m^2 (TYP)
	Response Time	16ms typ. (Tr+Tp)
Input	Signal	R.G.B Analog
	Connector	15 pin D-SUB Connector
SYNC	H-Freq	48.0kHz ~ 60.0kHz
	V-Freq	60.0Hz ~ 75Hz
Display	Area	304.118(H)X228.096(V)mm (31.1cm diagonal)
	Color	262,144 color (6-bit for R,G,B)
Resolution		1024 X 768 @ 75Hz
Video Bandwidth		80MHz
User Control & OSD Control		Contrast,Brightness,H-V Position, Clock Phase, Color Control, Language, Auto Adjust, Miscellaneous,s Auto Color, Audio Control
Power Management		VESA DPMS Standard
Plug & Play		VESA DDC 1/2B
Safety & Regulation	EMC	FCC CLASS B , CE , VCCI
	Safety	cULus, CE, TUV-GS, SEMKO
	Ergonomi	TCO'99
Temperature	Operating	5 to 35 ˚C
	Storage	- 5 to 45 ˚C
Humidity	Operating	30 to 80%(Non-condensing)
	Storage	5 to 90%(Non-condensing)
Weight	unpacked	2.6Kg
	packed	3.7Kg
Dimension(WXHXD mm)		345.6X362X185mm

* Specification is subject to change without notice for performance improvement.

Critical Parts Specification

1. LCD Module

1-1.General Description

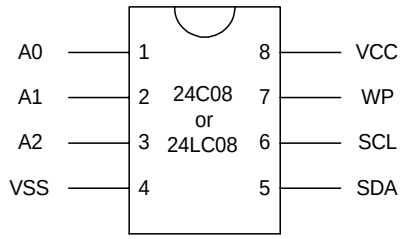
This specification applies to the 15.0inch Color TFT-LCD Module M150XN05.
The display supports the XGA (1024(H)X768(V) screen format and 262,144 color(RGB 6-bits data).
All input signals are 2 Channel TTL interface compatible.
This module does not contain an inverter card for backlight

1-2. Features

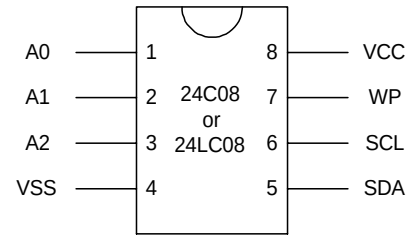
- XGA 1024(H) X 768(V) resolution
- 2 CCFLs (Cold cathode Fluorescent Lamp)
- High contrast ratio, high aperture ratio
- Wide viewing angle
- High speed response
- Low power consumption

Items	M150XN05(AUO)
Display Size	304.1(H)x228.1(V)mm 15.Oinch diagonal
Drive System	a-Si TFT active matrix
Display Colors	262,144 Colors
Number of pixels	1024x768
Pixel arrangement	RGB vertical stripe
Pixel pitch	0.297(H)x0.297(V)mm
Module Size	326(H) x 249(V) x 12.05(D) typ.mm
Weight	1,100g(Typ.)
Conerast ratio	400:1(typ)
View angle CR=10	H : +/-60(Typ) V : +40, -60(Typ)
Response time	16msec(Typ)
Luminance	250cd/m2(Typ)
Signal system	TTL 2PORT
Supply voltage	3.3V
Back Light	Edge type : 2CCFL
Power consumption	11W(typ)

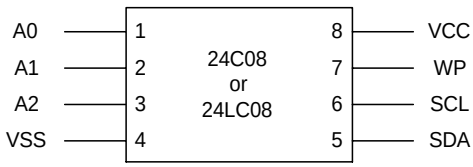
24LC08



Dual-In-Line package



SO package (M8)



TSSOP

Pin Name

A0, A1	N.C.
A2	Device Address inputs
Vss	Ground
SDA	Data I/O
SCL	Clock input
WP	Write Protect
Vcc	+ 5 V or + 3 V

3.0 ABSOLUTE MAXIMUM RATINGS

Storage Temperature.....-65°C to + 125°C
Voltage with Respect to Ground.....-0.3 to + 6.5 V

NOTE: These are STRESS rating only. Appropriate conditions for operating these devices given elsewhere may permanently damage the part. Prolonged exposure to maximum ratings may affect device reliability.

4.0 OPERATING CONDITIONS

Temperature under bias: MTV24C08/24LC08.....0°C to + 70°C
MTV24C08/24LC08-I.....-40°C to + 85°C

5.0 ELECTRICAL CHARACTERISTICS

DC ELECTRICAL CHARACTERISTICS
(Vcc =5V +/- 10% ,MTV24C08/24LC08° ∀cc =3V +/- 10% ,24LC08)

Symbol	Parameter	Conditions	MTV24C08/ 24LC08		24LC08		Units
			Min	Max	Min	Max	
I_{CC1}	Operating Current (Program)	SCL = 100KHZ CMOS Input Levels	—	10	—	8	mA
I_{CC2}	Operating Current (Read)	SCL = 100KHZ CMOS Input Levels	—	2	—	2	mA
I_{SB}	Standby Current	SCL = SDA = 0 V	—	10	—	10	µA
I_{IL}	Input Leakage	V_{IN} = 0 V to V_{CC}	-1	+1	-1	+1	µA
I_{OL}	Output Leakage	V_{OUT} = 0 V to Vcc	-1	+1	-1	+1	µA
V_{IL}	Input Low Voltage		-0.1	0.8	-0.1	0.15 V_{CC}	V
V_{IH}	Input High Voltage		2	V_{CC} +0.2	0.8V_{CC}	V_{CC}+0.2	V
V_{OL1}	Output Low Voltage	I_{OL} = 2.1mA TTL	—	0.4	—	0.4	V
V_{OH1}	Output High Voltage	I_{OH} = -400uA TTL	2.4	—	2.4	—	V
V_{OL2}	Output Low Voltage	I_{OL} = 10uA CMOS	—	0.2	—	0.2	V
V_{OH2}	Output High Voltage	I_{OH} = -10uA CMOS	V_{CC}-0.2	—	V_{CC}-0.2	—	V
V_{LK}	V_{CC} Lockout Voltage	Programming Command Can Be Executed	Default	—	Default	—	V

6.0 SWITCHING CHACTERISTICS (Under Operating Conditions)

AC ELECTRICAL CHARACTERISTICS
(Vcc =5V +/- 10% , MTV24C08° ∀cc =3V +/- 10% ,24LC08)
(Vcc =5V +/- 10% , MTV24C08 Fast Mode)

Parameter	Symbol	MTV24C08/ 24LC08		MTV24C08 (Fast Mode)		Units
		Min	Max	Min	Max	
Clock frequency	Fscl	0	100	—	400	kHz
Clock high time	Thigh	4000	—	600	—	ns
Clock low time	Tlow	4700	—	1200	—	ns
SDA and SCL rise time	Tr	—	1000	—	300	ns
SDA and SCL fall time	Tf	—	300	—	300	ns
START condition hold time	Thd:Sta	4000	—	600	—	ns
START condition setup time	Tsu:Sta	4700	—	600	—	ns
Data input hold time	Thd:Dat	0	—	0	—	ns
Data input setup time	Tsu:Dat	250	—	100	—	ns
STOP condition setup time	Tsu:Sto	4000	—	600	—	ns
Output valid from clock	Taa	300	3500	100	900	ns
Bus free time	Tbuf	4700	—	1200	—	ns
Data out hold time	Tdh	300	—	50	—	ns
Input filter spike suppression (SDA and SCL pins)	Tsp	—	100	—	50	ns
Write cycle time	Twr	—	10	—	10	ms

CAPACITANCE TA= 25∝C , f=250KHZ

Symbol	Parameter	Max	Units
C_{OUT}	Output capacitance	5	pF
C_{IN}	Input capacitance	5	pF

A.C. Conditions of Test

Input Pulse Levels	Vcc x 0.1 to Vcc x 0.9
Input Rise and Fall times	10 ns
Input and Output Timming level	Vcc x 0.5
Output Load	1 TTL Gate and CL = 100pf

RC1117-3.3

1A Adjustable/Fixed Low Dropout Linear Regulator

Features

- Low dropout voltage
- Load regulation: 0.05% typical
- Trimmed current limit
- On-chip thermal limiting
- Standard SOT-223, TO-263, and TO-252 packages
- Three-terminal adjustable or fixed 2.5V, 2.85V, 3.3V, 5V

Applications

- Active SCSI terminators
- High efficiency linear regulators
- Post regulators for switching supplies
- Battery chargers
- 5V to 3.3V linear regulators
- Motherboard clock supplies

Description

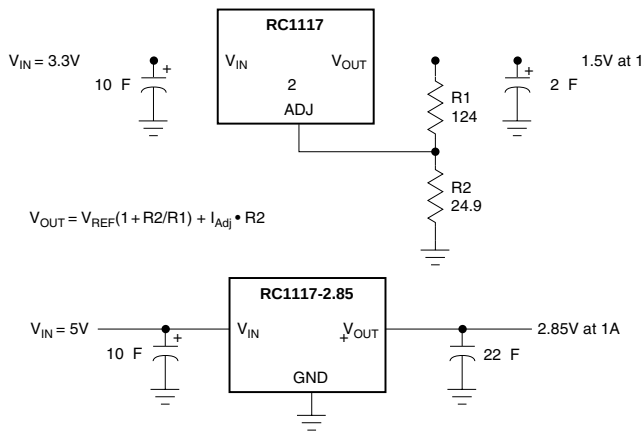
The RC1117 and RC1117-2.5, -2.85, -3.3 and -5 are low dropout three-terminal regulators with 1A output current capability. These devices have been optimized for low voltage where transient response and minimum input voltage are critical. The 2.85V version is designed specifically to be used in Active Terminators for SCSI bus.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limiting provides protection against any combination of overload and ambient temperatures that would create excessive junction temperatures.

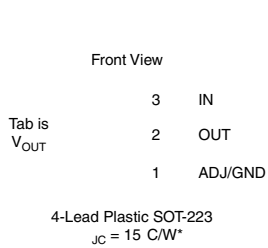
Unlike PNP type regulators where up to 10% of the output current is wasted as quiescent current, the quiescent current of the RC1117 flows into the load, increasing efficiency.

The RC1117 series regulators are available in the industry-standard SOT-223, TO-263 (D2PAK), and TO-252 (DPAK) power packages.

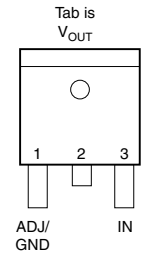
Typical Applications



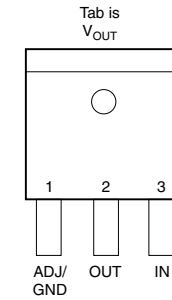
Pin Assignments



4-Lead Plastic SOT-223
$_{JC}$ = 15 C/W*



3-Lead Plastic TO-252
$_{JC}$ = 3 C/W*



3-Lead Plastic TO-263
$_{JC}$ = 3 C/W*

*With package soldered to 0.5 square inch copper area over backside ground plane or internal power plane., $_{JA}$ can vary from 30°C/W to more than 50°C/W. Other mounting techniques may provide better thermal resistance than 30°C/W.

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
V_{IN}		7.5	V
Operating Junction Temperature Range	0	125	C
Storage Temperature Range	-65	150	C
Lead Temperature (Soldering, 10 sec.)		300	C

Electrical Characteristics

Operating Conditions: V_{IN} 7V, T_J = 25°C unless otherwise specified.

The denotes specifications which apply over the specified operating temperature range.

Parameter	Conditions		Min.	Typ.	Max.	Units
Reference Voltage, V_{REF}[3]	1.5V (V_{IN} - V_{OUT}) 5.75V, 10mA I_{OUT} 1A		1.225 (-2%)	1.250	1.275 (+2%)	V
Output Voltage	10mA I_{OUT} 1A RC1117-2.5, 4V V_{IN} 7V RC1117-2.85, 4.35V V_{IN} 7V RC1117-3.3, 4.8V V_{IN} 7V RC1117-5, 6.5V V_{IN} 7V		 2.450 2.793 3.234 4.900	 2.5 2.85 3.3 5.0	 2.550 2.907 3.366 5.100	 V V V V
Line Regulation[1,2]	(V_{OUT} + 1.5V) V_{IN} 7V, I_{OUT} = 10mA			0.005	0.2	%
Load Regulation[1,2]	(V_{IN} – V_{OUT}) = 2V, 10mA I_{OUT} 1A			0.05	0.5	%
Dropout Voltage	V_{REF} = 1%, I_{OUT} = 1A			1.100	1.200	V
Current Limit	(V_{IN} – V_{OUT}) = 2V		1.1	1.5		A
Adjust Pin Current, I_{Adj}[3]				35	120	A
Adjust Pin Current Change[3]	1.5V (V_{IN} – V_{OUT}) 5.75, 10mA I_{OUT} 1A			0.2	5	A
Minimum Load Current	1.5V (V_{IN} – V_{OUT}) 5.75		10			mA
Quiescent Current	V_{IN} = V_{OUT} + 1.25V			4	13	mA
Ripple Rejection	f = 120Hz, C_{OUT} = 22 F Tantalum, (V_{IN} – V_{OUT}) = 3V, I_{OUT} = 1A		60	72		dB
Thermal Regulation	T_A = 25 C, 30ms pulse			0.004	0.02	%/W
Temperature Stability				0.5		%
Long-Term Stability	T_A = 125 C, 1000hrs.			0.03	1.0	%
RMS Output Noise (% of V_{OUT})	T_A = 25 C, 10Hz f 10kHz			0.003		%
Thermal Resistance, Junction to Case	SOT-223			15		C/W
	TO-252, TO-263			3		C/W
Thermal Shutdown	Junction Temperature			155		C
Thermal Shutdown Hysteresis				10		C

Notes:

1. See thermal regulation specifications for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
2. Line and load regulation are guaranteed up to the maximum power dissipation (18W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/output voltage range.
3. RC1117 only.

RC1117-2.5

1A Adjustable/Fixed Low Dropout Linear Regulator

Features

- Low dropout voltage
- Load regulation: 0.05% typical
- Trimmed current limit
- On-chip thermal limiting
- Standard SOT-223, TO-263, and TO-252 packages
- Three-terminal adjustable or fixed 2.5V, 2.85V, 3.3V, 5V

Applications

- Active SCSI terminators
- High efficiency linear regulators
- Post regulators for switching supplies
- Battery chargers
- 5V to 3.3V linear regulators
- Motherboard clock supplies

Description

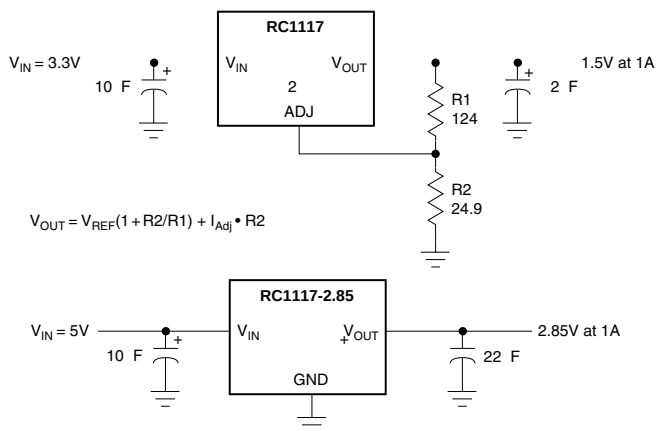
The RC1117 and RC1117-2.5, -2.85, -3.3 and -5 are low dropout three-terminal regulators with 1A output current capability. These devices have been optimized for low voltage where transient response and minimum input voltage are critical. The 2.85V version is designed specifically to be used in Active Terminators for SCSI bus.

Current limit is trimmed to ensure specified output current and controlled short-circuit current. On-chip thermal limiting provides protection against any combination of overload and ambient temperatures that would create excessive junction temperatures.

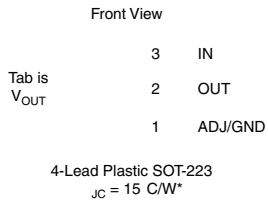
Unlike PNP type regulators where up to 10% of the output current is wasted as quiescent current, the quiescent current of the RC1117 flows into the load, increasing efficiency.

The RC1117 series regulators are available in the industry-standard SOT-223, TO-263 (D2PAK), and TO-252 (DPAK) power packages.

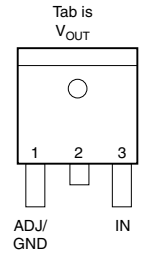
Typical Applications



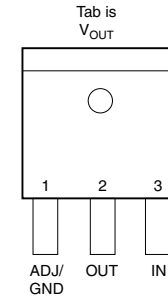
Pin Assignments



4-Lead Plastic SOT-223
$_{JC}$ = 15 C/W*



3-Lead Plastic TO-252
$_{JC}$ = 3 C/W*



3-Lead Plastic TO-263
$_{JC}$ = 3 C/W*

*With package soldered to 0.5 square inch copper area over backside ground plane or internal power plane., $_{JA}$ can vary from 30°C/W to more than 50°C/W. Other mounting techniques may provide better thermal resistance than 30°C/W.

Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
V_{IN}		7.5	V
Operating Junction Temperature Range	0	125	C
Storage Temperature Range	-65	150	C
Lead Temperature (Soldering, 10 sec.)		300	C

Electrical Characteristics

Operating Conditions: V_{IN} 7V, T_J = 25°C unless otherwise specified.

The denotes specifications which apply over the specified operating temperature range.

Parameter	Conditions		Min.	Typ.	Max.	Units
Reference Voltage, V_{REF}[3]	1.5V (V_{IN} - V_{OUT}) 5.75V, 10mA I_{OUT} 1A		1.225 (-2%)	1.250	1.275 (+2%)	V
Output Voltage	10mA I_{OUT} 1A RC1117-2.5, 4V V_{IN} 7V RC1117-2.85, 4.35V V_{IN} 7V RC1117-3.3, 4.8V V_{IN} 7V RC1117-5, 6.5V V_{IN} 7V		 2.450 2.793 3.234 4.900	 2.5 2.85 3.3 5.0	 2.550 2.907 3.366 5.100	 V V V V
Line Regulation[1,2]	(V_{OUT} + 1.5V) V_{IN} 7V, I_{OUT} = 10mA			0.005	0.2	%
Load Regulation[1,2]	(V_{IN} – V_{OUT}) = 2V, 10mA I_{OUT} 1A			0.05	0.5	%
Dropout Voltage	V_{REF} = 1%, I_{OUT} = 1A			1.100	1.200	V
Current Limit	(V_{IN} – V_{OUT}) = 2V		1.1	1.5		A
Adjust Pin Current, I_{Adj}[3]				35	120	A
Adjust Pin Current Change[3]	1.5V (V_{IN} – V_{OUT}) 5.75, 10mA I_{OUT} 1A			0.2	5	A
Minimum Load Current	1.5V (V_{IN} – V_{OUT}) 5.75		10			mA
Quiescent Current	V_{IN} = V_{OUT} + 1.25V			4	13	mA
Ripple Rejection	f = 120Hz, C_{OUT} = 22 F Tantalum, (V_{IN} – V_{OUT}) = 3V, I_{OUT} = 1A		60	72		dB
Thermal Regulation	T_A = 25 C, 30ms pulse			0.004	0.02	%/W
Temperature Stability				0.5		%
Long-Term Stability	T_A = 125 C, 1000hrs.			0.03	1.0	%
RMS Output Noise (% of V_{OUT})	T_A = 25 C, 10Hz f 10kHz			0.003		%
Thermal Resistance, Junction to Case	SOT-223			15		C/W
	TO-252, TO-263			3		C/W
Thermal Shutdown	Junction Temperature			155		C
Thermal Shutdown Hysteresis				10		C

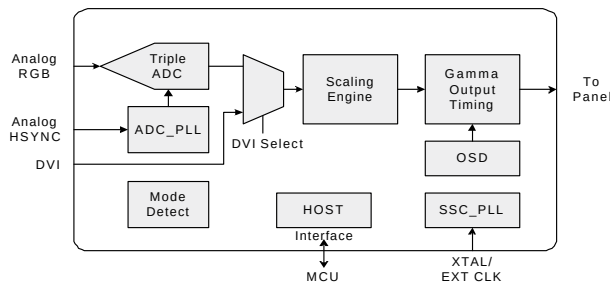
Notes:

1. See thermal regulation specifications for changes in output voltage due to heating effects. Load and line regulation are measured at a constant junction temperature by low duty cycle pulse testing.
2. Line and load regulation are guaranteed up to the maximum power dissipation (18W). Power dissipation is determined by input/output differential and the output current. Guaranteed maximum output power will not be available over the full input/output voltage range.
3. RC1117 only.

MST9010

GENERAL DESCRIPTION

The MST9010 is a high performance, and fully integrated graphics processing IC solution for LCD monitors with resolutions up to XGA. It is configured with an integrated triple-ADC/PLL, a high quality scaling engine, an on-screen display controller, and a built-in output clock generator. To further reduce system costs, the MST9010 also integrates intelligent power management control capability for green-mode requirements and spread-spectrum support for EMI management.



FEATURES

- High-quality zoom and shrink scaling engine (Compatible with VGA thru XGA)
- Integrated 8-bit triple-ADC/PLL
- On-screen display controller (OSD)
- Support RGB/DVI inputs
- Support composite sync and SOG separator
- Programmable 10-bit gamma correction
- Integrated Brightness & Contrast control adjustment
- Support PWM backlit intensity control
- Green PC and low EMI features
- Low standby power mode (< 5mA)

- High-Performance Scaling Engine

- Programmable shrink/zoom capabilities
- High-quality scaling for all VESA and IBM mode to fit screen
- Variable sharpness control

- Analog RGB/DVI Compliant Input Port

- Supports up to XGA at 85Hz/94.5Mhz
- Supports Composite Sync and SOG (Sync-on-Green) separator

- Auto-Detection/Tune

- Auto input signal format (SOG, Composite, Separated Hsync, Vsync, and DE), and input mode (all VESA & IBM modes w/ resolution and polarity) detection
- Auto-tuning function including phasing, positioning, offset, gain, and jitter detection
- Smart screen-fitting

- On-Screen OSD Controller

- Built-in OSD generator with 128 character font programmable RAM
- Internal OSD rotation degree of 90 and 270
- Gradient color function
- Pattern generator for production test
- Support OSD MUX and alpha blending capability

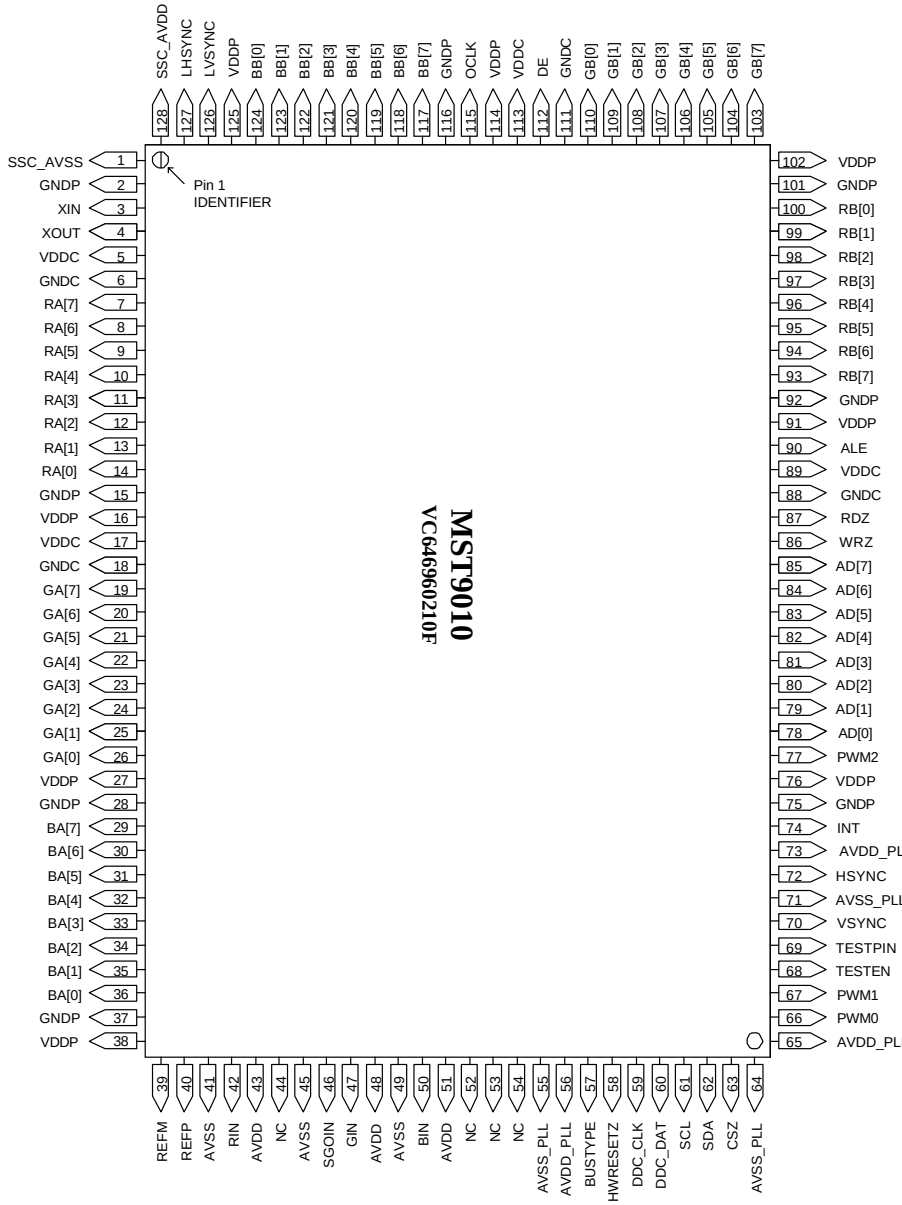
- Output Format

- Support output up to XGA panel
- 24bit/48bit panel interface with stagger option
- Programmable I/O for strength signal pins for different output loading
- Built-in output clock generator with Spread Spectrum Control
- Support dynamic dithering function

- External Connection/Component

- Built-in DDC circuit
- Support 8051 (up to 40MHz) and serial (up to 400Kbit/sec) bus type

PIN DIAGRAM


MST9010
VC64690210F
Pin 1
IDENTIFIER
1 SSC_AVSS
2 GNDP
3 XIN
4 XOUT
5 VDDC
6 GNDC
7 RA[7]
8 RA[6]
9 RA[5]
10 RA[4]
11 RA[3]
12 RA[2]
13 RA[1]
14 RA[0]
15 GNDP
16 VDDP
17 VDDC
18 GNDC
19 GA[7]
20 GA[6]
21 GA[5]
22 GA[4]
23 GA[3]
24 GA[2]
25 GA[1]
26 GA[0]
27 VDDP
28 GNDP
29 BA[7]
30 BA[6]
31 BA[5]
32 BA[4]
33 BA[3]
34 BA[2]
35 BA[1]
36 BA[0]
37 GNDP
38 VDDP
39 REFM
40 REFP
41 AVSS
42 RIN
43 AVDD
44 NC
45 AVSS
46 SGOIN
47 GIN
48 AVDD
49 AVSS
50 BIN
51 AVDD
52 NC
53 NC
54 NC
55 AVSS_PLL
56 AVDD_PLL
57 BUSTYPE
58 HWRESETZ
59 DDC_CLK
60 DDC_DAT
61 SCL
62 SDA
63 CSZ
64 AVSS_PLL
65 AVDD_PLL
66 PWM0
67 PWM1
68 TESTEN
69 TESTPIN
70 VSYNC
71 AVSS_PLL
72 HSYNC
73 AVDD_PLL
74 INT
75 GNDP
76 VDDP
77 PWM2
78 AD[0]
79 AD[1]
80 AD[2]
81 AD[3]
82 AD[4]
83 AD[5]
84 AD[6]
85 AD[7]
86 WRZ
87 RDZ
88 GNDC
89 VDDC
90 ALE
91 VDDP
92 GNDP
93 RB[7]
94 RB[6]
95 RB[5]
96 RB[4]
97 RB[3]
98 RB[2]
99 RB[1]
100 RB[0]
101 GNDP
102 VDDP
103 GB[7]
104 GB[6]
105 GB[5]
106 GB[4]
107 GB[3]
108 GB[2]
109 GB[1]
110 GB[0]
111 GNDC
112 DE
113 VDDC
114 VDDP
115 OCLK
116 GNDP
117 BB[7]
118 BB[6]
119 BB[5]
120 BB[4]
121 BB[3]
122 BB[2]
123 BB[1]
124 BB[0]
125 VDDP
126 LVSYNC
127 LHSYNC
128 SSC_AVDD

PIN DESCRIPTION

Table I: CPU Interface

Pin Name	Pin Type	Function	Driving Strength (mA)	Pin Number(s)
BUSTYPE	Schmitt Trigger Input w/ 5V-tolerant	Bus Type		57
HWRESETZ#	Schmitt Trigger Input w/ 5V-tolerant	Hardware reset		58
WRZ#	I/O w/ 5V-tolerant	8051 bus WRZ	4 ~ 12	86
RDZ#/DVI_HS	I/O w/ 5V-tolerant	8051 bus RDZ/ DVI HSYN	4 ~ 12	87
ALE	I/O w/ 5V-tolerant	8051 bus WRZ	4 ~ 12	90
AD [7]/DVI_VS	I/O w/ 5V-tolerant	8051 bus AD [7] DVI VSYNC	4 ~ 12	85
AD [6]	I/O w/ 5V-tolerant	8051 bus AD [6]	4 ~ 12	84
AD [5]	I/O w/ 5V-tolerant	8051 bus AD [5]	4 ~ 12	83
AD [4]	I/O w/ 5V-tolerant	8051 bus AD [4]	4 ~ 12	82
AD [3]	I/O w/ 5V-tolerant	8051 bus AD [3]	4 ~ 12	81
AD [2]	I/O w/ 5V-tolerant	8051 bus AD [2]	4 ~ 12	80
AD [1]	I/O w/ 5V-tolerant	8051 bus AD [1]	4 ~ 12	79
AD [0]	I/O w/ 5V-tolerant	8051 bus AD [0]	4 ~ 12	78
SDA	I/O w/ 5V-tolerant	3 Wire Serial Bus Data	4	62
SCL/DVI_VS	Input w/ 5V-tolerant	3 Wire Serial Bus Clock/DVI VSYNC		61
CSZ#/DVI_HS	Input w/ 5V-tolerant	3 Wire Serial Bus Chip Select/ DVI HSYNC		63
INT	Output	CPU interrupt	4	74

Table II: ADC/ADC_PLL Interface

Pin Name	Pin Type	Function	Driving Strength (mA)	Pin Number(s)
HSYNC		Analog HSYNC Input		72
VSYNC	Schmitt Trigger Input w/ 5V-tolerant	Analog VSYNC Input		70
REFM		Internal ADC Bottom De-coupling Pin		39
REFP		Internal ADC Top De-coupling Pin		40
RIN		Analog Red Input		42
SOGIN		Syn On Green Input		46
GIN		Analog Green Input		47
BIN		Analog Blue Input		50

Table III: LCD Interface

Pin Name	Pin Type	Function	Driving Strength (mA)	Pin Number(s)
LCK_ODD	Output w/ Pull-down Resistor	LCD Output Clock	4 ~ 12	115
LHSYNC	Output w/ Pull-down Resistor	LCD HSYNC	4 ~ 12	127
LVSYNC	Output w/ Pull-down Resistor	LCD VSYNC	4 ~ 12	126
LDE	Output w/ Pull-down Resistor	LCD Display Enable	4 ~ 12	112
RA [7:2]	Output w/ Pull-down Resistor	Port A Red [7:2]	4 ~ 12	7-12
RA [1:0	Output w/ Pull-down Resistor	Port A Red[1:0]		13-14
GA [7:2]	Output w/ Pull-down Resistor	Port A Green [7:2]	4 ~ 12	19-24
GA [1:0]	Output w/ Pull-down Resistor	Port A Green [1:0]	4 ~ 12	25-26
BA [7:2]	Output w/ Pull-down Resistor	Port A Blue [7:2]	4 ~ 12	29-34
BA [1:0]	Output w/ Pull-down Resistor	Port A Blue [1:0]	4 ~ 12	35-36
RB [7:2]	I/O w/ Pull-down Resistor	Port B Red [7:2]	4 ~ 12	93-98
RB [1:0]	I/O w/ Pull-down Resistor	Port B Red [1:0]	4 ~ 12	99-100
GB [7:2]	I/O w/ Pull-down Resistor	Port B Green [7:2]	4 ~ 12	103-108

BA033

Regulator, low drop-out type with ON/OFF switch

BAST / BASFP series

The BAST and BASFP series are variable, fixed output low drop-out type voltage regulators with an ON/OFF switch.
These regulators are used to provide a stabilized output voltage from a fluctuating DC input voltage.
Fixed output voltages are 3.3V, 5V, 6V(SFP), 7V, 8V, 9V, 10V(ST), 12V(ST). The maximum current capacity is 1 A for each of the above voltages.

! **Application**

Constant voltage power supply

! Features

1) Built-in overvoltage protection circuit, overcurrent protection circuit and thermal shutdown circuit
2) TO220FP-5, TO252-5 standard packages can be accomodated in wide application.
3) 0 A (design value) circuit current when switch is off
4) Richly diverse lineup.
5) Low minimum I/O voltage differential.

! Absolute maximum ratings (Ta=25 C)

Parameter		Symbol	Limits	Unit
Power supply voltage		V_{CC}	35	V
Power dissipation	TO220FP-5	Pd	2000 *1	mW
	TO252-5		1000 *2	
Operating temperature		Topr	-40~+85	˚C
Storage temperature		Tstg	-55~+150	˚C
Peak applied voltage		Vsurge	50 *3	V

*1 Reduced by 16mW for each increase in Ta of 1˚C over 25˚C.
*2 Reduced by 8mW for each increase in Ta of 1˚C over 25˚C.
*3 Voltage application time : 200 msec. or less

BA033ST / SFP

Parameter	Symbol	Min.	Max.	Unit
Input voltage	V_{CC}	4.3	25	V
Output current	I_O	-	1	A

BA033ST / SFP (unless otherwise noted, Ta=25 C, Vcc=8 V, Io=500 mA)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement circuit
Power save current	I_{ST}	-	0	10	A	OFF mode	Fig.4
Output voltage	V_{O1}	3.13	3.3	3.47	V		Fig.1
Input stability	Reg.I	-	20	100	mV	V_{CC}=4=.3 25V	Fig.1
Ripple rejection ratio	R.R.	45	55	-	dB	e_{IN}=1Vrms, f=120Hz, I_O=100mA	Fig.2
Load regulation	Reg.L	-	50	150	mV	I_O=5mA 1A	Fig.1
Temperature coefficient of output voltage	T_{CVO}	-	±0.02	-	% / ˚C	I_O=5mA, Tj=0~125˚C	Fig.1
Minimum I/O voltage differential	V_d	-	0.3	0.5	V	V_{CC}=0.95V_O	Fig.3
Bias current	I_b	-	2.5	5.0	mA	I_O=0mA	Fig.4
Peak output current	I_O	1.0	1.5	-	A	Tj=25˚C	Fig.1
Output short-circuit current	I_{OS}	-	0.4	-	A	V_{CC}=25V	Fig.5
ON mode voltage	Vth1	2.0	-	-	V	Output Active mode, I_O=0mA	Fig.6
OFF mode voltage	Vth2	-	-	0.8	V	Output OFF mode, I_O=0mA	Fig.6
Input high level current	I_{IN}	100	200	300	A	CTL=5V, I_O=0mA	Fig.6

WT61P4 vo.94d

GENERAL DESCRIPTION

The WT61P4 is a microcontroller for digital controlled monitor with 1) 8051 compatible cpu, 2) 64K bytes Flash memory, 3) 1024 bytes SRAM, 4) 16 PWM, 5) SYNC signal processor, 6) timer, 7) DDC1/2B interface, 8) master/slave I^2C interface, 9) 8-bit A/D converter, 10) watch-dog timer, 11) ISP, 12) power down mode.

FEATURES

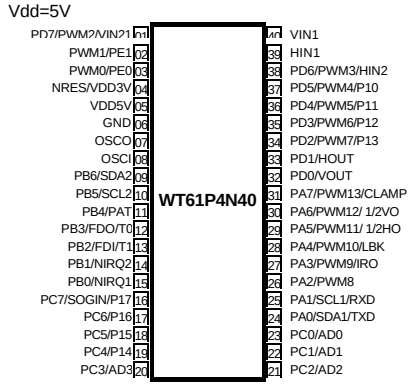
- 8-bit 8051 compatible CPU with 12/24MHz operating frequency
- 64K bytes flash memory, 1024 bytes SRAM (256 bytes internal + 768 bytes external)
- 12MHz crystal oscillator
- 16 channels PWM outputs (15 8-bit + 1 16-bit)
- Sync signal processor with H+V separation, H/V frequency counter, H/V polarity detection/control and clamp pulse output
- Programmable free-running SYNC signal output & White video pattern (Horizontal frequency up to 250KHz with programmable H pulse width and V pulse width)
- Programmable H and V overflow interrupt for fast blanking
- Two timers compatible to 8051
- DMA DDC1/2B module for EDID1.3, EDID2.0 (A2/A3, A6/A7) and Enhance EDID (60/61)
- Fast mode master/slave I^2C interface (up to 400KHz)
- 8-bit A/D converter with 4 selectable inputs
- Watchdog timer
- Maximum 35 programmable I/O pins (PLCC package)
- Two external interrupt request input
- 5/3.3 volt operate voltage supported
- Low V_{DD} reset supported
- ISP function supported
- Power down mode supported
- C compiler supported

ORDERING INFORMATION

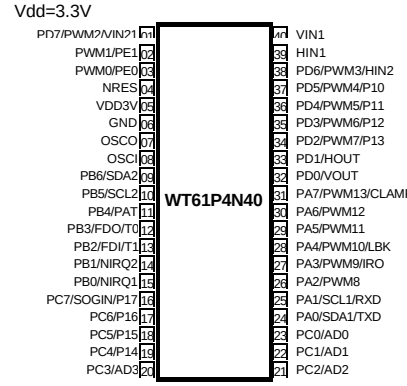
Package Type	Part Number
42-pin PDIP	WT61P4-N42
42-pin Shrink PDIP	WT61P4-K42
40-pin PDIP	WT61P4-N40
44-pin SOP	WT61P4-S44
44-pin PLCC	WT61P4-L44

PIN ASSIGNMENT AND PACKAGE TYPE

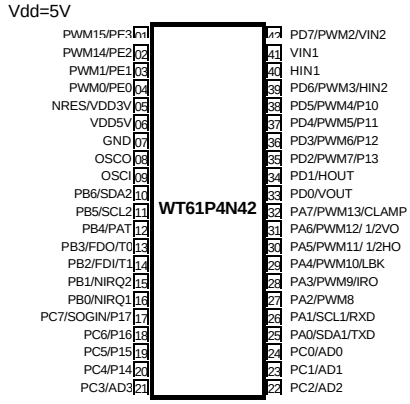
Vdd=5V



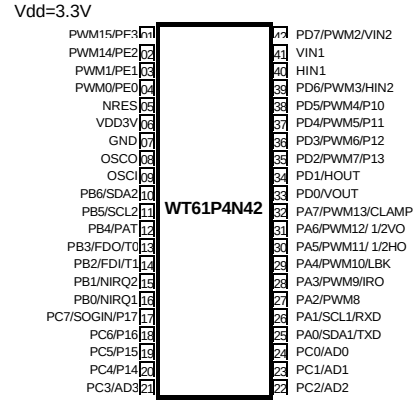
Vdd=3.3V



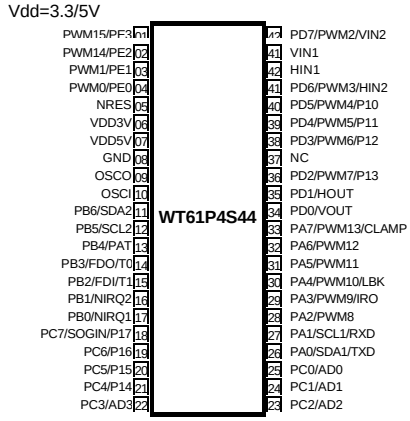
Vdd=5V



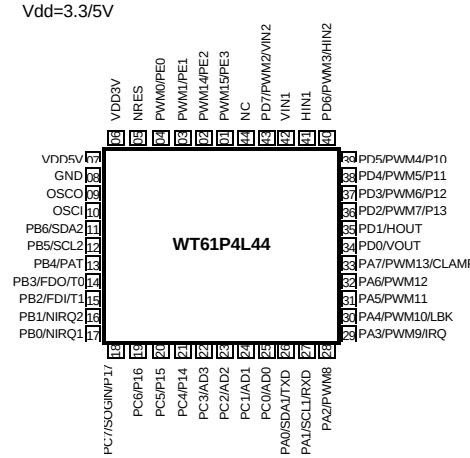
Vdd=3.3V



Vdd=3.3/5V



Vdd=3.3/5V



PIN DESCRIPTION

Pin No.				Pin Name	I/O	Description
L44	S44	42	40			
1	1	1	-	PE3/PWM15	I/O	Port E3 or PWM15
2	2	2	-	PE2/PWM14	I/O	Port E2 or PWM14
3	3	3	2	PE1/PWM1	I/O	Port E1 or PWM1
4	4	4	3	PE0/PWM0	I/O	Port E0 or PWM0 (12 bits)
5	5	5	4	NRES/3.3V	I/O	Reset input or +3.3V regulator output
6	6	6	5	VDD3.3V	P	+3.3V power supply
7	7	6	5	VDD5V	P	+5V power supply
8	8	7	6	GND	P	Ground
9	9	8	7	OSCO	O	12Mhz or 24MHz oscillator output
10	10	9	8	OSCI	I	12Mhz or 24MHz oscillator input
11	11	10	9	PB6/SDA2	I/O	Port B6 or IIC SDA
12	12	11	10	PB5/SCL2	I/O	Port B5 or IIC SCL
13	13	12	11	PB4/PAT	I/O	Port B4 or test pattern output
14	14	13	12	PB3/FDO/T0	I/O	Port B3 or frequency divider output
15	15	14	13	PB2/FDI/T1	I/O	Port B2 or frequency divider input
16	16	15	14	PB1/NIRQ2	I/O	Port B1 or External interrupt II request input
17	17	16	15	PB0/NIRQ1	I/O	Port B0 or External interrupt I request input
18	18	17	16	PC7/SOGIN/P17	I/O	Port C7 or Sync on Green input or 8031 P1.7
19	19	18	17	PC6/RIN/P16	I/O	Port C6 or 8031 P1.6
20	20	19	18	PC5/GIN/P15	I/O	Port C5 or 8031 P1.5
21	21	20	19	PC4/BIN/P14	I/O	Port C4 or 8031 P1.4
22	22	21	20	PC3/AD3	I/O	Port C3 or ADC input 3
23	23	22	21	PC2/AD2	I/O	Port C2 or ADC input 2
24	24	23	22	PC1/AD1	I/O	Port C1 or ADC input 1
25	25	24	23	PC0/AD0	I/O	Port C0 or ADC input 0
26	26	25	24	PA0/SDA1/TXD	I/O	Port A0 or DDC SDA pin or RS232C TXD
27	27	26	25	PA1/SCL1/RXD	I/O	Port A1 or DDC SCL pin or RS232C RXD
28	28	27	26	PA2/PWM8	I/O	Port A2 or PWM8
29	29	28	27	PA3/PWM9	I/O	Port A3 or PWM9
30	30	29	28	PA4/PWM10	I/O	Port A4 or PWM10
31	31	30	29	PA5/PWM11/(1/2HO)	I/O	Port A5 or PWM11 or 1/2 HOUT
32	32	31	30	PA6/PWM12/(1/2VO)	I/O	Port A6 or PWM12 or 1/2 VOUT
33	33	32	31	PA7/PWM13/CLAMP	I/O	Port A7 or PWM13 or CLAMP output
34	34	33	32	PD0/VOUT	I/O	Port D0 or VSYNC output
35	35	34	33	PD1/HOUT	I/O	Port D1 or HSYNC output
36	36	35	34	PD2/PWM7/P13	I/O	Port D2 or PWM7 or 8031 P1.3
-	37	-	-	NC		No Connection
37	38	36	35	PD3/PWM6/P12	I/O	Port D3 or PWM6 or 8031 P1.2
38	39	37	36	PD4/PWM5/P11	I/O	Port D4 or PWM5 or 8031 P1.1
39	40	38	37	PD5/PWM4/P10	I/O	Port D5 or PWM4 or 8031 P1.0
40	41	39	38	PD6/PWM3/HIN2	I/O	Port D6 or PWM3 or HSYNC **II** Input
41	42	40	39	HIN1	I	HSYNC **I** Input.
42	43	41	40	VIN1	I	VSYNC **I** input.
43	44	42	1	PD7/PWM2/VIN2	I/O	Port D7 or PWM2 or VSYNC **II** Input
44	-	-	-	NC		No Connection

BLOCK DIAGRAM
MODEL NAME : L50S

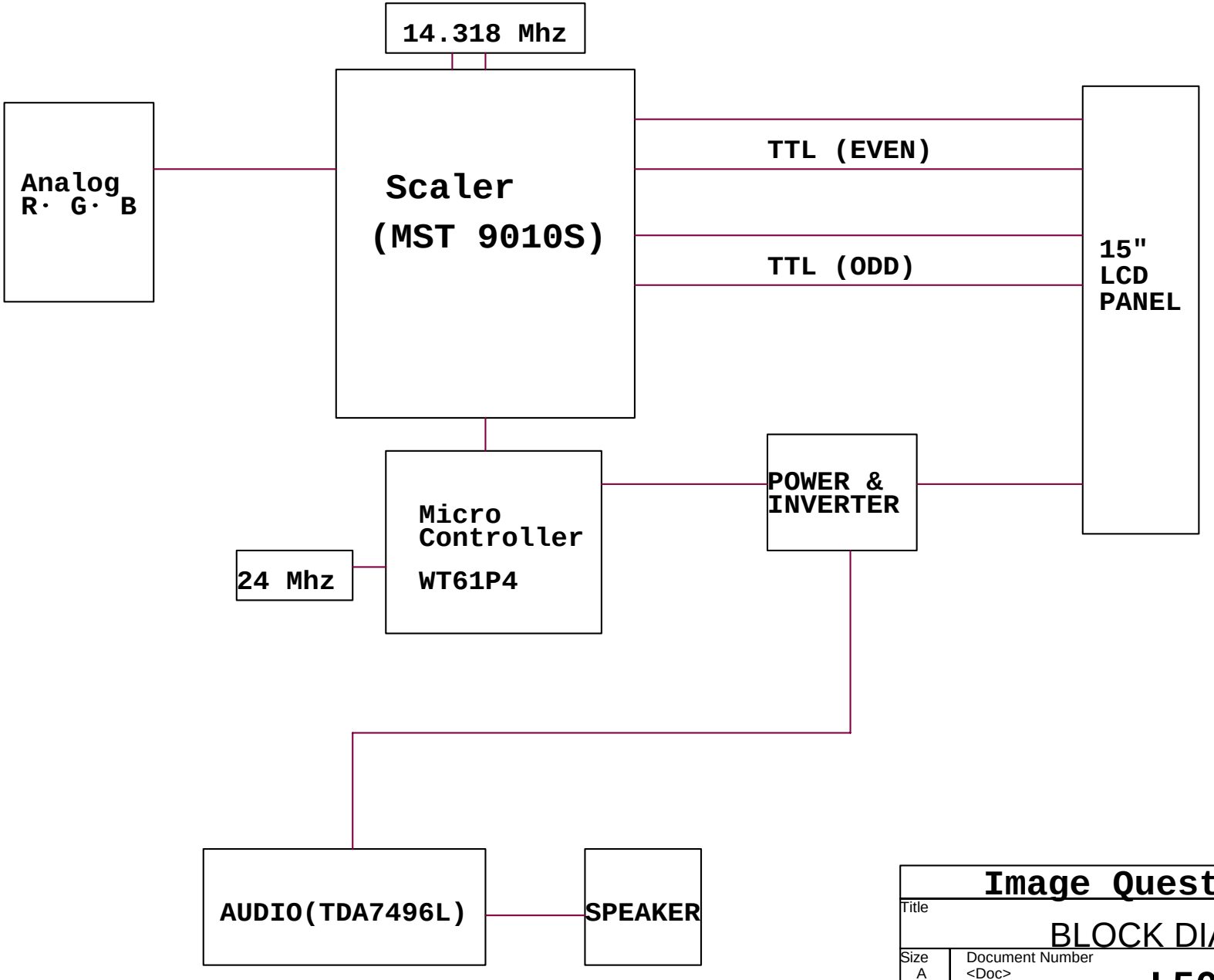


Image Quest Co., Ltd.		
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Size: A	Document Number: <Doc> L50S	Rev: A
Date: Monday, April 28, 2003	Sheet 7 of 7	

PART LIST

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
1	AR1	2593309004	RES-C-NET,33 0.063W J 3216	
2	AR10	2593309004	RES-C-NET,33 0.063W J 3216	
3	AR11	2593309004	RES-C-NET,33 0.063W J 3216	
4	AR2	2593309004	RES-C-NET,33 0.063W J 3216	
5	AR3	2593309004	RES-C-NET,33 0.063W J 3216	
6	AR4	2593309004	RES-C-NET,33 0.063W J 3216	
7	AR5	2593309004	RES-C-NET,33 0.063W J 3216	
8	AR6	2593309004	RES-C-NET,33 0.063W J 3216	
9	AR7	2593309004	RES-C-NET,33 0.063W J 3216	
10	AR8	2593309004	RES-C-NET,33 0.063W J 3216	
11	AR9	2593309004	RES-C-NET,33 0.063W J 3216	
12	C1	2012200005	CAP-AL-C,22UF 16V M 5052	
13	C10	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
14	C11	2012200005	CAP-AL-C,22UF 16V M 5052	
15	C111	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
16	C112	2014700009	CAP-AL-C,47UF 16V M 6352	
17	C113	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
18	C114	2124740025	CAP-C-C,0.47UF 50V Z Y5V 1608	
19	C115	2011010014	CAP-AL-C,100UF 16V M 6357	
20	C116	2011000006	CAP-AL-C,10UF 16V M 4052	
21	C117	2011010014	CAP-AL-C,100UF 16V M 6357	
22	C118	RK1JC0T0000J	RES-C,0 0.063W J 1608	
23	C119	RK1JC0T0000J	RES-C,0 0.063W J 1608	
24	C12	2123340024	CAP-C-C,0.33UF 50V Z Y5V 1608	
25	C120	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
26	C121	2012210009	CAP-AL-C,220UF 10V M 6.3x7.5 8	
27	C122	2012200005	CAP-AL-C,22UF 16V M 5052	
28	C14	2012200005	CAP-AL-C,22UF 16V M 5052	
29	C15	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
30	C17	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
31	C18	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
32	C19	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
33	C2	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
34	C20	2121020039	CAP-C-C,1000PF 50V K X7R 1608	
35	C21	2122000001	CAP-C-C,20PF 50V J COG 1608	
36	C22	2122000001	CAP-C-C,20PF 50V J COG 1608	
37	C23	2122000001	CAP-C-C,20PF 50V J COG 1608	
38	C24	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
39	C25	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
40	C26	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
41	C27	CC7FCA1H330J	CAP-CC,33PF 50V J 1608	
42	C28	2122210028	CAP-C-C,220PF 50V J COG 1608	
43	C29	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
44	C3	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
45	C32	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
46	C33	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
47	C34	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
48	C35	2011000006	CAP-AL-C,10UF 16V M 4052	
49	C36	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
50	C37	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
51	C38	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
52	C39	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
53	C4	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
54	C40	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
55	C41	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
56	C42	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
57	C43	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
58	C44	2011000006	CAP-AL-C,10UF 16V M 4052	
59	C45	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
60	C46	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
61	C47	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
62	C48	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
63	C49	2011000006	CAP-AL-C,10UF 16V M 4052	
64	C5	2011010014	CAP-AL-C,100UF 16V M 6357	
65	C50	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
66	C51	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
67	C52	2011000006	CAP-AL-C,10UF 16V M 4052	
68	C53	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
69	C54	2011000006	CAP-AL-C,10UF 16V M 4052	
70	C55	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
71	C56	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
72	C57	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
73	C58	2014700009	CAP-AL-C,47UF 16V M 6352	
74	C59	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
75	C6	2011010014	CAP-AL-C,100UF 16V M 6357	
76	C60	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
77	C61	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
78	C62	CC7FCA1H220J	CAP-CC,22PF 50V J 1608	
79	C63	2014700009	CAP-AL-C,47UF 16V M 6352	
80	C64	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
81	C65	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
82	C66	CC7FCA1H101J	CAP-C-C,100PF 50V J COG 1608	
83	C67	2124710037	CAP-C-C,470PF 50V J COG 1608	
84	C7	2012200005	CAP-AL-C,22UF 16V M 5052	
85	C70	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
86	C8	2121040045	CAP-C-C,0.1UF 50V Z Y5V 1608	
87	C89	CC7FCA1H330J	CAP-CC,33PF 50V J 1608	
88	C90	CC7FCA1H330J	CAP-CC,33PF 50V J 1608	
89	C91	CC7FCA1H330J	CAP-CC,33PF 50V J 1608	
90	C92	CC7FCA1H330J	CAP-CC,33PF 50V J 1608	
91	CN1	E4204307601A	CONN,D-SUB 15P FEMALE STICK	
92	CN2	3720101992	CONN-M,54132-4590 45	
93	CN2	3725005266	CONN-A,45P FPC CABLE 108MM L50	
94	CN3	3720101991	CONN-M,54132-3090 30	
95	CN3	3725005265	CONN-A,30P FPC CABLE 108MM L50	
96	CON1	3725005292	INVERTER CABLE, L50S/L70S	
97	CON2	372010139501	CONN-M,SMAW200-12P	
98	D1	3101000376	DI-ZN,Z02W6.2V SMD	
99	D2	3101000376	DI-ZN,Z02W6.2V SMD	
100	D3	3100100038	DI-AR,KDS226 SMD	
101	D4	3100100038	DI-AR,KDS226 SMD	
102	D5	3100100038	DI-AR,KDS226 SMD	
103	D6	3101000376	DI-ZN,Z02W6.2V SMD	

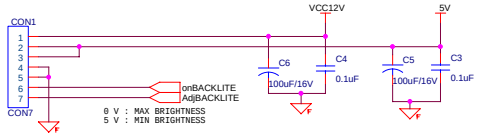
NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
104	D7	3101000376	DI-ZN,Z02W6.2V SMD	
105	D8	3101000376	DI-ZN,Z02W6.2V SMD	
106	J1	3721101253	CONN-F, AUDIO INPUT JACK	
107	J2	3721101252	CONN-F, HEAD PHONE JACK	
108	Q1	TT2N3904D	TR,SMD 2N3904D TAPPING	
109	Q2	TT2N3904D	TR,SMD 2N3904D TAPPING	
110	R1	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
111	R10	2607509010	RES-C,75 0.063W F 1608	
112	R11	RK1JC0T0101J	RES-C,100 0.063W J 1608	
113	R12	RK1JC0T0101J	RES-C,100 0.063W J 1608	
114	R13	RK1JC0T0101J	RES-C,100 0.063W J 1608	
115	R14	RK1JC0T0000J	RES-C,0 0.063W J 1608	
116	R15	RK1JC0T0101J	RES-C,100 0.063W J 1608	
117	R16	RK1JC0T0222J	RES CHIP 2.2K 5% 0.063W	
118	R17	RK1JC0T0000J	RES-C,0 0.063W J 1608	
119	R18	RK1JC0T0101J	RES-C,100 0.063W J 1608	
120	R19	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
121	R2	RK1JC0T0000J	RES-C,0 0.063W J 1608	
122	R20	RK1JC0T0101J	RES-C,100 0.063W J 1608	
123	R21	RK1JC0T0101J	RES-C,100 0.063W J 1608	
124	R22	RK1JC0T0101J	RES-C,100 0.063W J 1608	
125	R23	2603900008	RES-C,390 0.063W F 1608	
126	R26	2602202015	RES-C,22K 0.063W J 1608	
127	R27	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
128	R28	2608201013	RES-C,8.2K 0.1W J 1608	
129	R3	RK1JC0T0101J	RES-C,100 0.063W J 1608	
130	R30	RK1JC0T0105J	RES-C,1M 0.063W J 1608	
131	R31	2602000010	RES-C,200 0.063W J 1608	
132	R32	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
133	R33	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
134	R34	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
135	R35	RK1JC0T0101J	RES-C,100 0.063W J 1608	
136	R36	RK1JC0T0101J	RES-C,100 0.063W J 1608	
137	R37	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
138	R38	RK1JC0T0151J	RES CHIP 150 5% 1/16W	

NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
139	R39	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
140	R4	RK1JC0T0000J	RES-C,0 0.063W J 1608	
141	R40	RK1JC0T0000J	RES-C,0 0.063W J 1608	
142	R41	RK1JC0T0000J	RES-C,0 0.063W J 1608	
143	R42	2602202015	RES-C,22K 0.063W J 1608	
144	R43	RK1JC0T0000J	RES-C,0 0.063W J 1608	
145	R44	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
146	R45	RK1JC0T0473J	RES-C,47K 0.063W J 1608	
147	R46	RK1JC0T0473J	RES-C,47K 0.063W J 1608	
148	R47	2602000010	RES-C,200 0.063W J 1608	
149	R48	2602000010	RES-C,200 0.063W J 1608	
150	R49	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
151	R5	RK1JC0T0101J	RES-C,100 0.063W J 1608	
152	R50	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
153	R51	2607500012	RES-C,750 0.063W J 1608	
154	R52	2607500012	RES-C,750 0.063W J 1608	
155	R53	RK1JC0T0101J	RES-C,100 0.063W J 1608	
156	R54	RK1JC0T0101J	RES-C,100 0.063W J 1608	
157	R55	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
158	R56	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
159	R57	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
160	R58	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
161	R59	RK1JC0T0151J	RES CHIP 150 5% 1/16W	
162	R6	RK1JC0T0000J	RES-C,0 0.063W J 1608	
163	R60	RK1JC0T0103J	RES-C,10K 0.063W J 1608	
164	R62	2602700001	RES-C,270 0.063W J 1608	
165	R63	2602700001	RES-C,270 0.063W J 1608	
166	R66	RK1JC0T0471J	RES-C,470 0.063W J 1608	
167	R67	RK1JC0T0471J	RES-C,470 0.063W J 1608	
168	R68	RK1JC0T0471J	RES-C,470 0.063W J 1608	
169	R69	RK1JC0T0471J	RES-C,470 0.063W J 1608	
170	R7	RK1JC0T0101J	RES-C,100 0.063W J 1608	
171	R70	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
172	R71	RK1JC0T0471J	RES-C,470 0.063W J 1608	
173	R72	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	

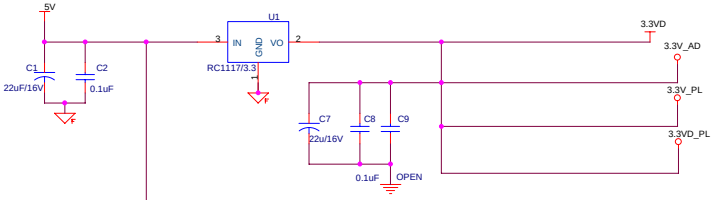
NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
174	R73	RK1JC0T0472J	RES-CHIP 4.7K J 1/16W 1608	
175	R74	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
176	R75	RK1JC0T0102J	RES-C,1K 0.063W J 1608	
177	R8	2607509010	RES-C,75 0.063W F 1608	
178	R9	2607509010	RES-C,75 0.063W F 1608	
179	RN1	2591002009	RES-C-NET,10K 0.063W J 3216	
180	U1	3200001392	IC-LIN,RC1117-3.3 SOT	
181	U2	3200001582	IC-LIN,BA033SFP TO252-5	
182	U3	3200001462	IC-LIN,RC1117ST-2.5 SOT	
183	U4	3205001410	IC-U,MST9010S-TTL XGA	
184	U5	3205001409	WT61P4 PLCC	
185	U5	3721100621	CONN-F,PLL-44-PPS-T-M 44	
186	U6	3203000879	IC-MEMO,S524A60X81-SCB0	
187	U7	3200001310	IC-LIN,TDA7496L DIP	
188	Y1	3530200505	VIB-QUARTZ,SX-1 SMD 14.31818MH	
189	Y2	3530200586	VIB-QUARTZ,SMD 24MHZ 22PF	
190		3330500255	LCD,M150XN05 AU	
191		3550100115	SPEAKER ASS'Y, L50S/L70S	
192		3610200114	POWER+INVERTER,L50S AUO 115X13	⚠
193		3725005295	CONN-A, 12P OSD CABLE ASS'Y 20	
194		3758000200	CBL-PWR,MW WALL 1.8MT EUROPEAN	
195		3758500473	CBL-SGN,1.5MT MIST WHITE 5.5PA	
196		3758500479	SIGNAL+POWER M/W CABLE ASS'Y(	
197		5001000579	SCR-MC,BIN + MC 3*8	
198		5001000666	SCR-MC,BIN + MC 3*5	
199		5004000190	SCR-TT,BIN + MC 3*8	
200		5004000192	SCR-TT,BIN + MC 3*6	
201		5004000194	SCR-TT,BIN + MC 4*10	
202		5004000197	SCR-TT,BIN + MC 3X10	
203		5004000204	SCR-TT,BIN + MC 3*8	
204		5004000208	SCR-TT,BIN + MC 4*12	
205		6101220800	MAIN FRAME,L50S	
206		6101220900	STAND FRAME	
207		6101221300	FRAME ASSY/AUO,L50S	
208		6110279200	HINGE BRKT L	

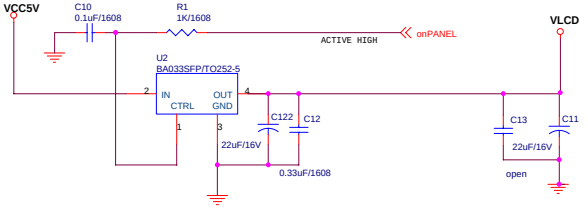
NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
209		6110279300	HINGE BRKT R	
210		6115025100	HINGE ASSY,L50S	
211		6128010165	GASKET EMI, 10X 8 X120	
212		6128010166	GASKET EMI, 10X 6 X130	
213		6128010167	GASKET EMI, 10X 6 X70	
214		6128010168	GASKET EMI, 20X15X15	
215		6201318300	COVER FRONT L50S	
216		6201318400	COVER PANEL,L50S	
217		6201318500	COVER REAR L50S	
218		6201318600	HINGE CAP L,L50S	
219		6201318700	HINGE CAP R,L50S	
220		6201318800	STAND FRONT	
221		6201318900	STAND REAR	
222		6201319000	STAND BASE	
223		6201319600	COVER,F.ASSY,L50S	
224		6201319901	STAND ASSY L50S NEW	
225		6201321100	STAND BASE ASSY L70S	
226		6210107103	EMI SHEET(AL) 30X20	
227		6210107113	AL TAPE,60X40 PE COATING	
228		6215240401	KNOB TACT,L50S OEM(COAT'G)	
229		6220085600	LED LENS	
230		6223066800	HOLDER,HANDLE TOP	
231		6223066900	HOLDER,HANDLE BOTTOM	
232		6223087600	PANEL SUPPORT AU,L50S	
233		6243028300	BAG,PE(ST) CLEAR 14/15ALL	
234		6243037901	MANUAL PE BAG	
235		6253119900	CUSHION TOP,L50S	
236		6253120000	CUSHION BOTTOM,L50S	
237		6261044600	RUBBER FOOT,L50S	
238		6301191400	PALLET PAD,ALL MODEL,SW-3	
239		6301193700	BOX CARTON,Q15N	
240		6301194800	BAND SQUARE,L50S OEM	
241		6309030000	PAD,PALLET CTN PBE/U 1517	
242		6309037300	PAD,PALLET ANGLE	
243		301070082601	OSD B/D ASS'Y, L50S/L70S	

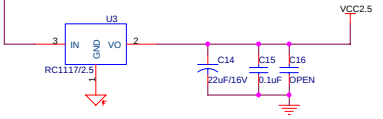
NO	LOCATION	PART NUMBER	DESCRIPTION	REMARK
244		304100106101	PCB-DOUBLE,L50S TTL 110*96	
245		375850041602	CBL-SGN,AUDIO INPUT CABLE 1	
246		B4209500302A	BAG PE,Q15N HECMVEL(350x300)	
247		B4210333301	LCD MEC.ASSY,L50S	
248		B4210333401	KIT COVER ASSY,L50S	
249		B4210333501	PACKING ASSY,L50S	
250		E4205020701	MAIN ASSY/A,L50S EXP	
251		E4208422911	PCBA MAIN(AM)/AUO,L50S	
252		E4208522901	PCBA MAIN(MM)/AUO,L50S	
253		E4208622901	PCBA MAIN(TM)/AUO,L50S	
254		M17744006012	SCREW,BIN(+) M4*6 MSZPC	



to
Inverter/Power







IMAGEQUEST		
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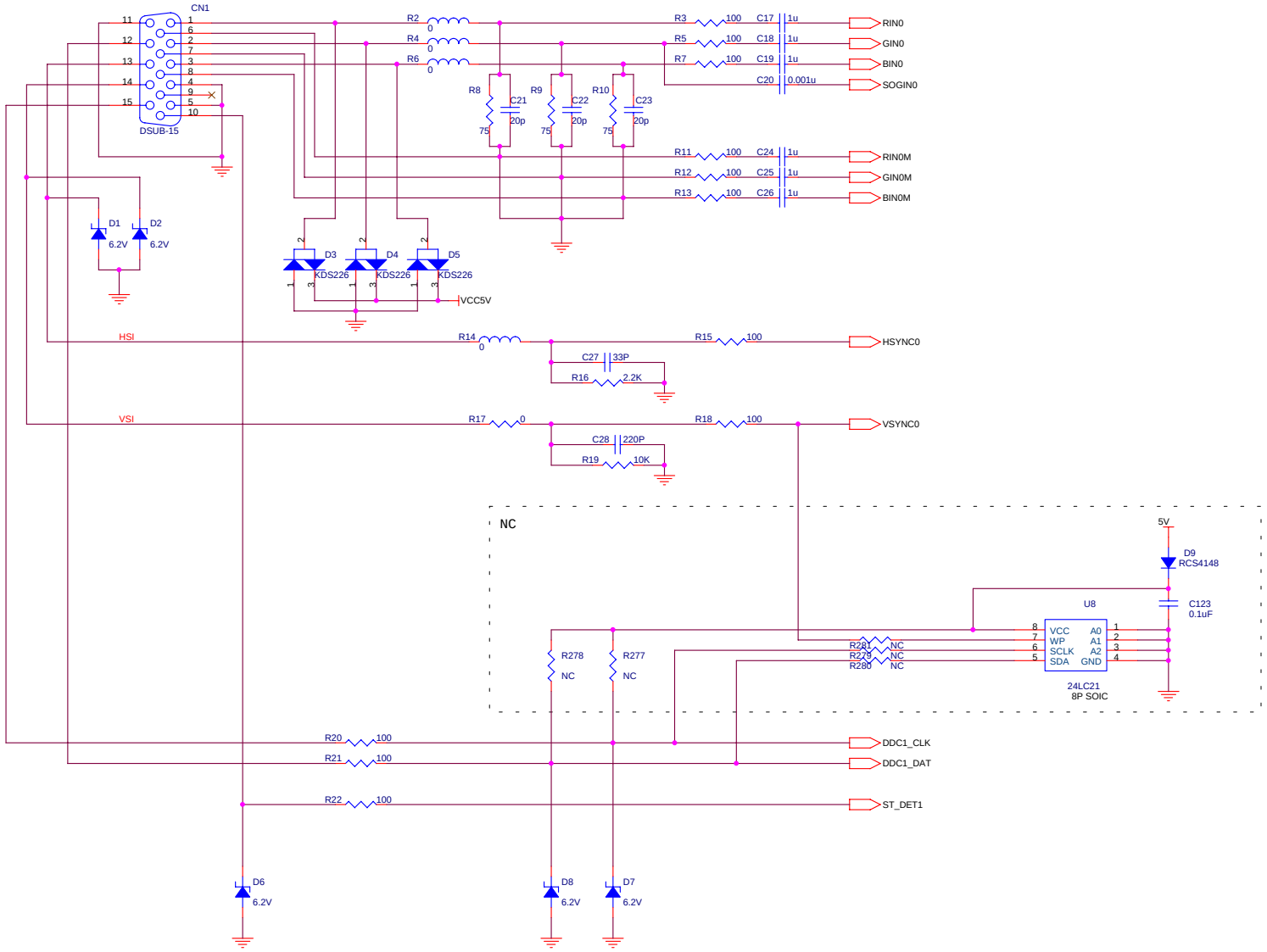
Size C	Document Number <Doc> DC-DC	Rev A
Date: Monday, April 28, 2003	Sheet 1 of 7	



IMAGEQUEST		
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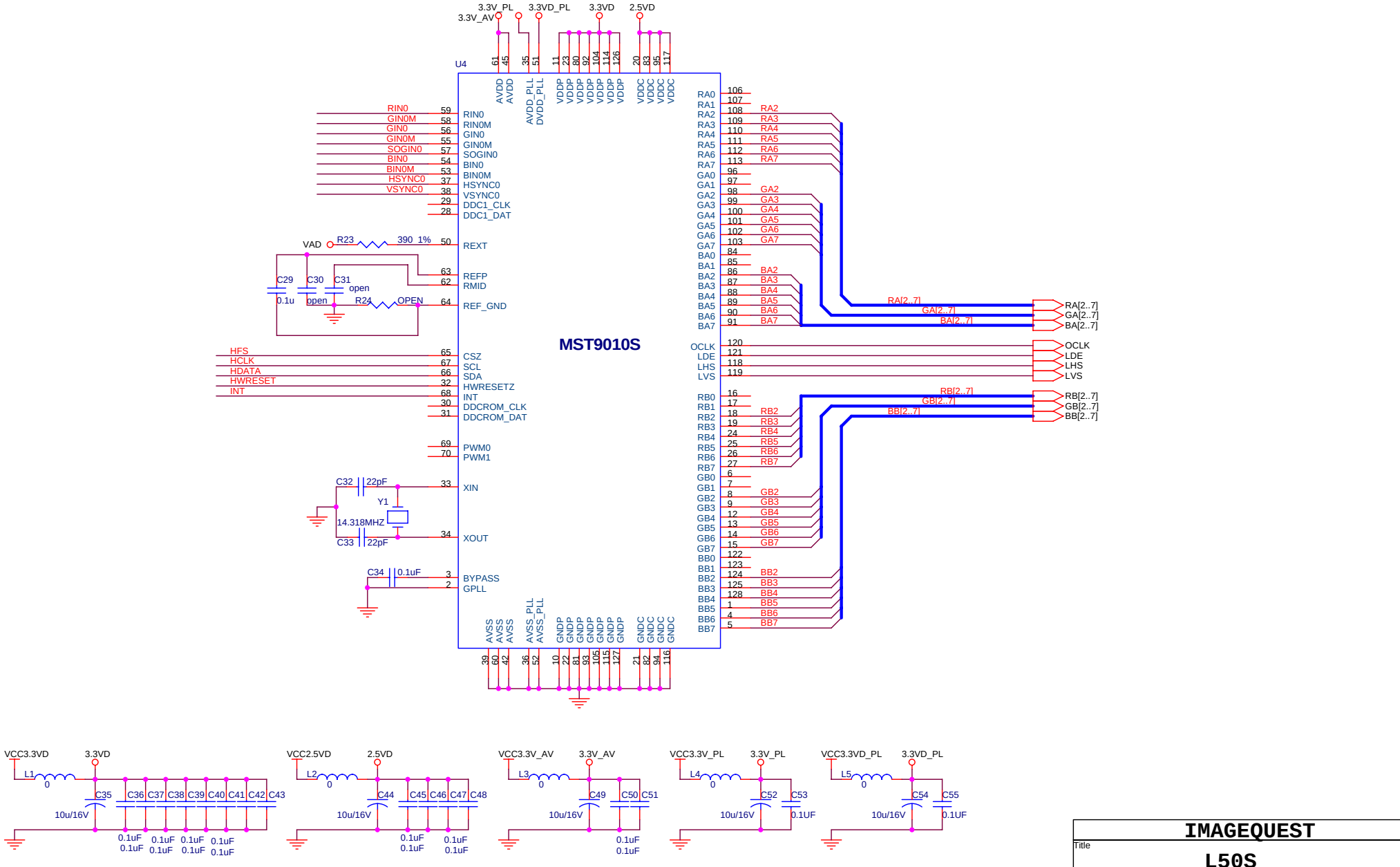
Size Custom	Document Number **VGA**	Rev A
Date: Monday, April 28, 2003	Sheet 2 of 7	



IMAGEQUEST		
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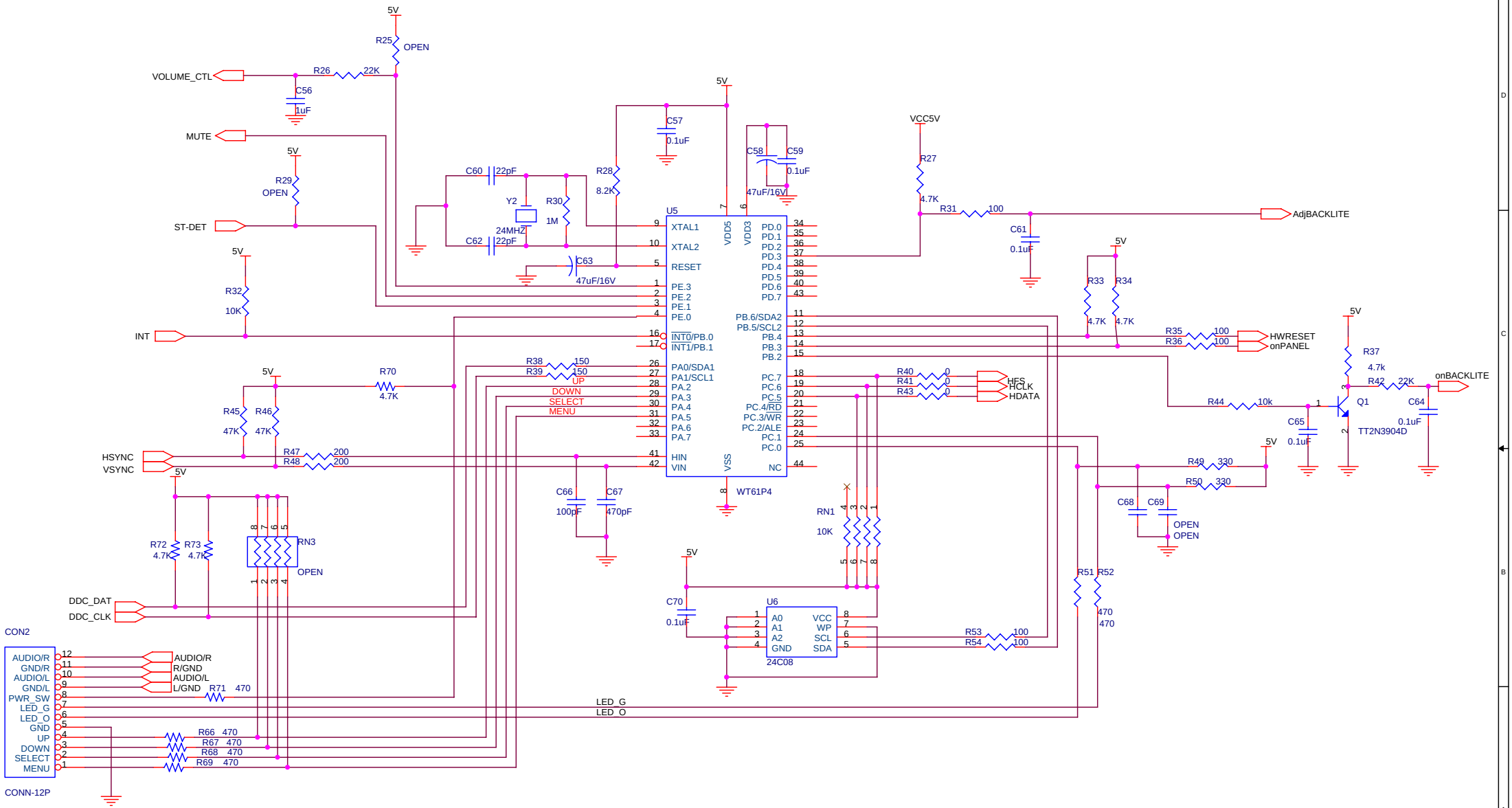
Size: B	Document Number: MST9010S	Rev: A
Date: Monday, April 28, 2003	Sheet 3 of 7	



IMAGEQUEST		
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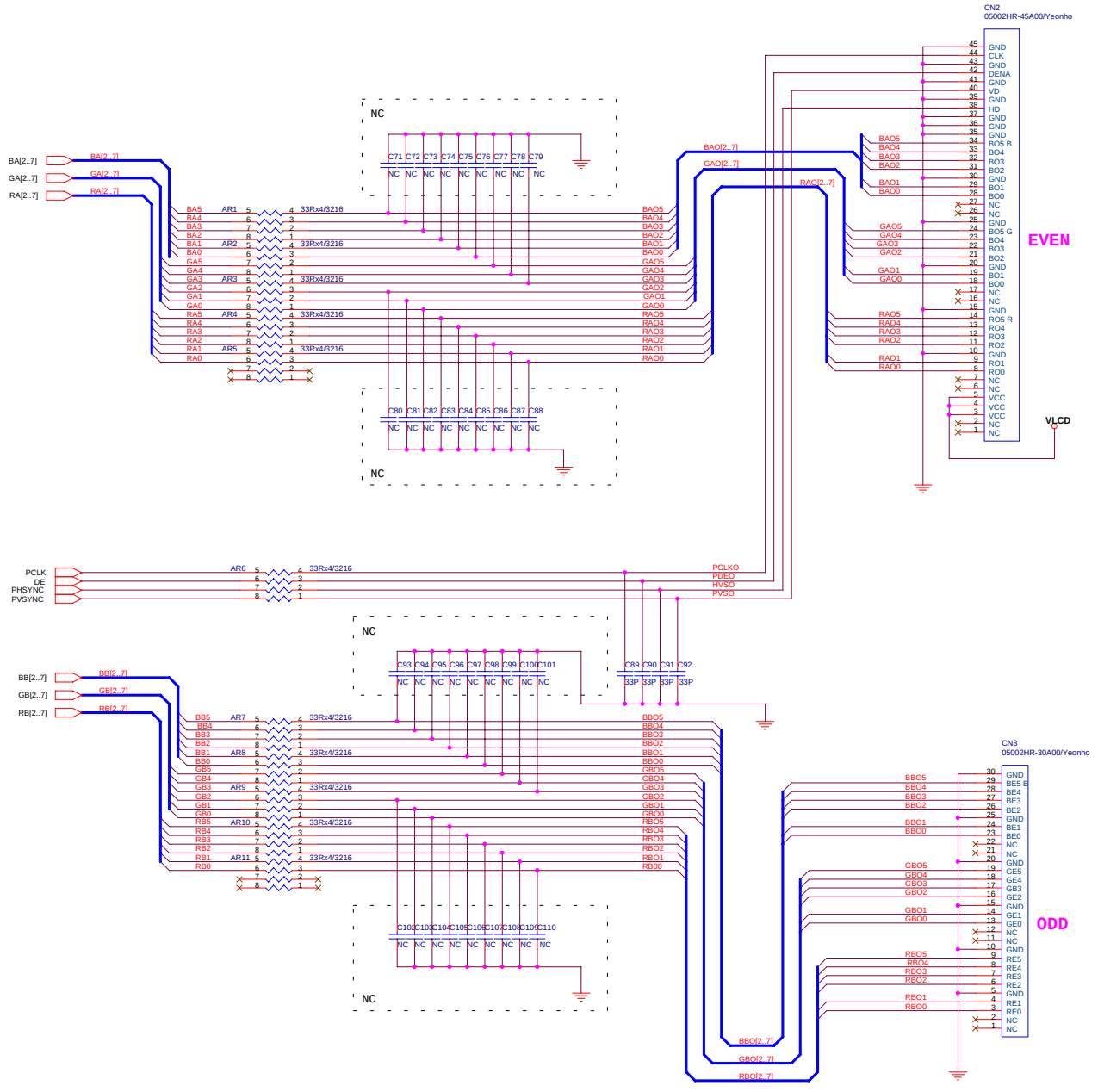
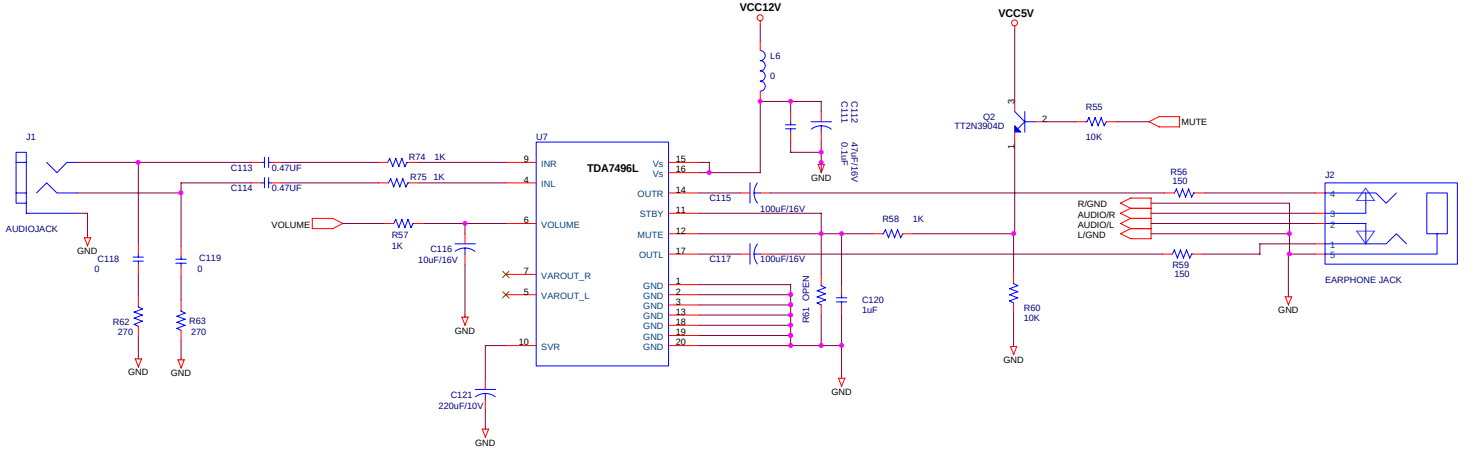
Size B	Document Number <Doc>	MPU Rev A
Date: Monday, April 28, 2003	Sheet 4 of 7	



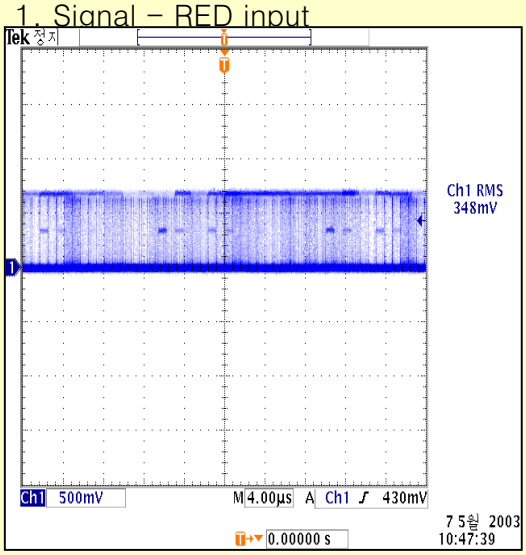
IMAGEQUEST			
Title	L50S		
Size C	Document Number PANEL TTL6BIT		Rev A
Date: Monday, April 28, 2003		Sheet 5 of 7	



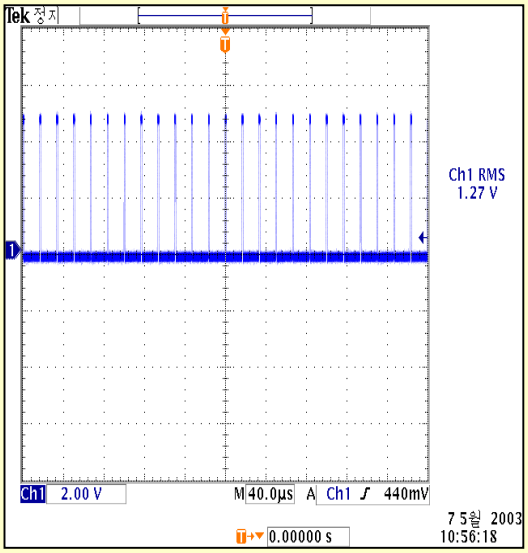
IMAGEQUEST		
Title <Title>	L50S	
Size C	Document Number <Doc> AUDIO	Rev A
Date: Monday, April 28, 2003	Sheet 6 of 7	

WAVE FORM

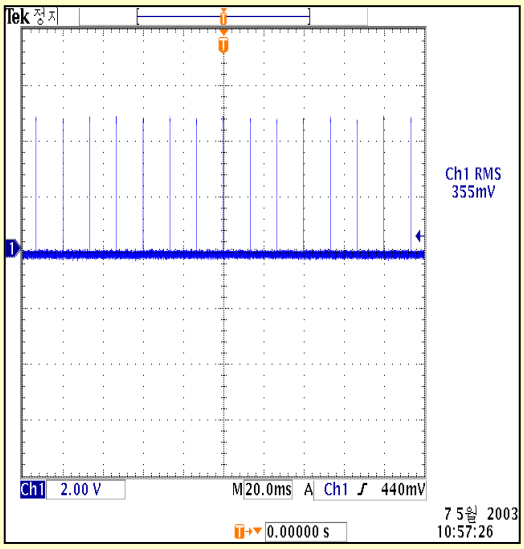
1. Signal - RED input



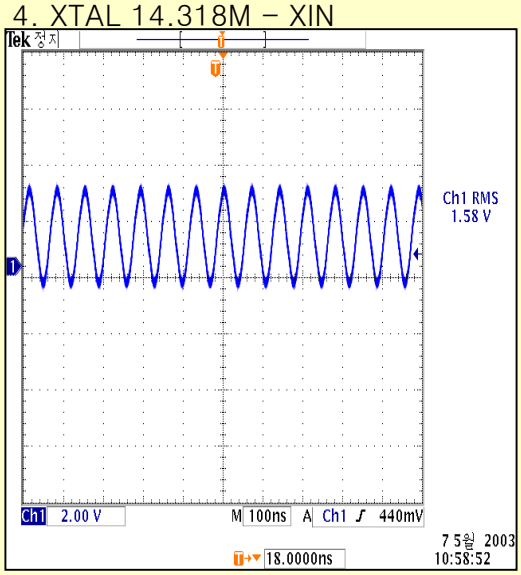
2. H-SYNC



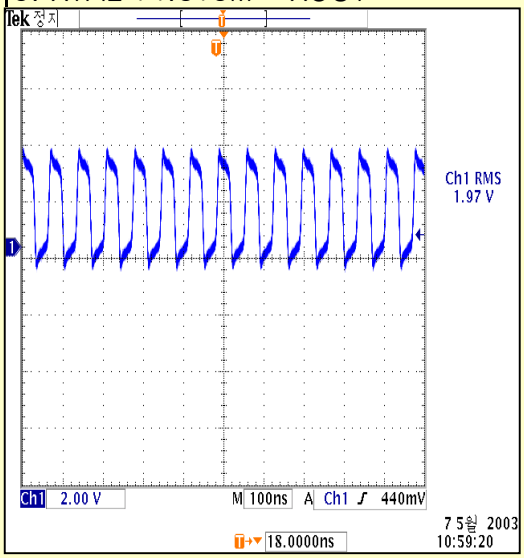
3. V-SYNC



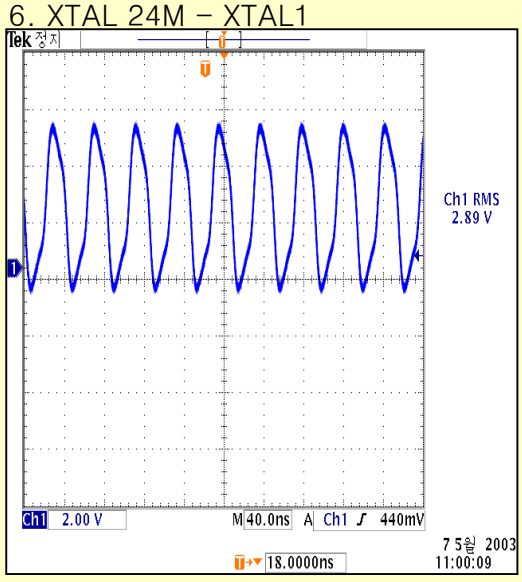
4. XTAL 14.318M - XIN



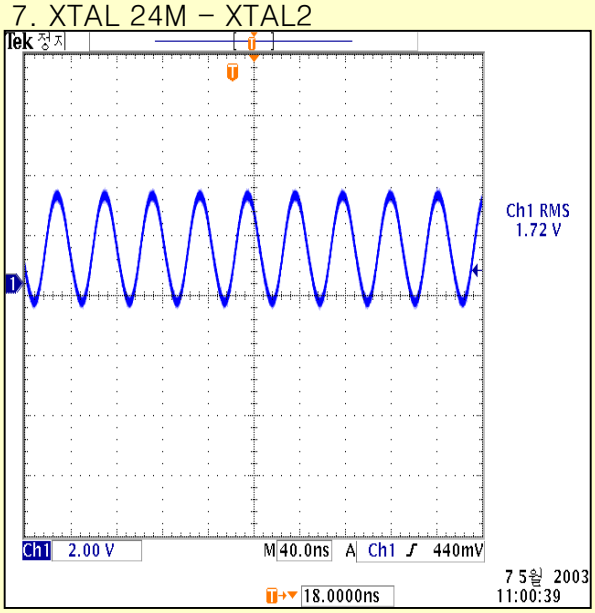
5. XTAL 14.318M - XOUT



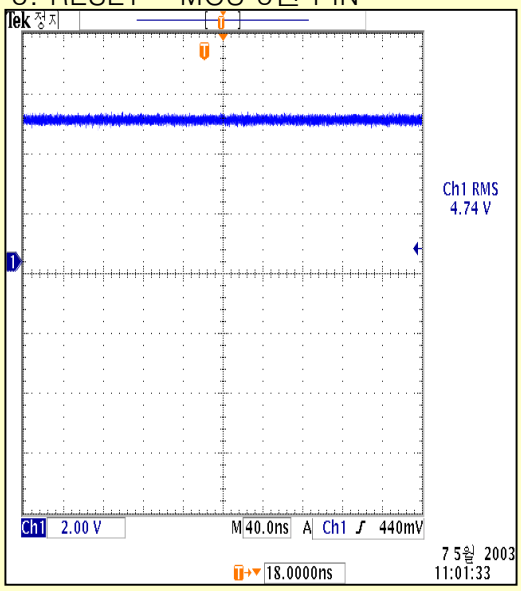
6. XTAL 24M - XTAL1



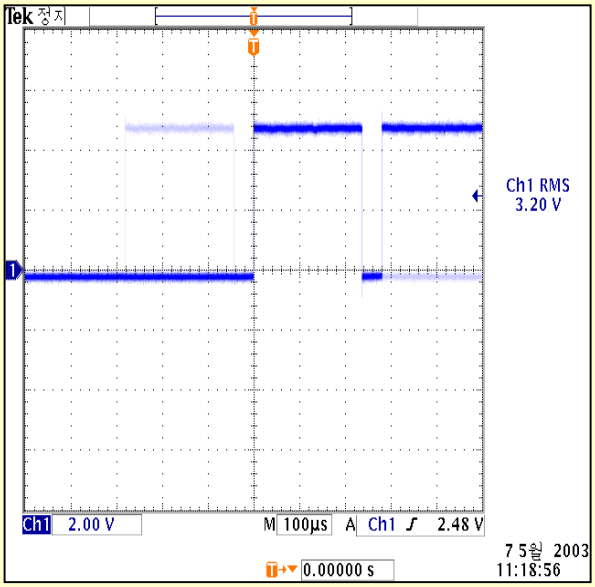
7. XTAL 24M – XTAL2



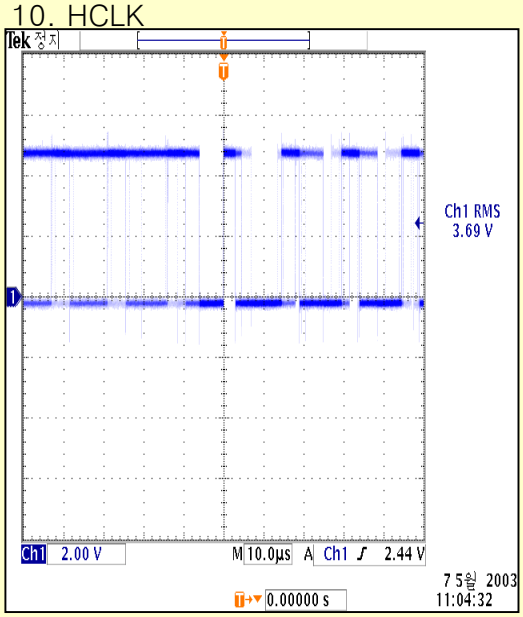
8. RESET – MCU 5번 PIN



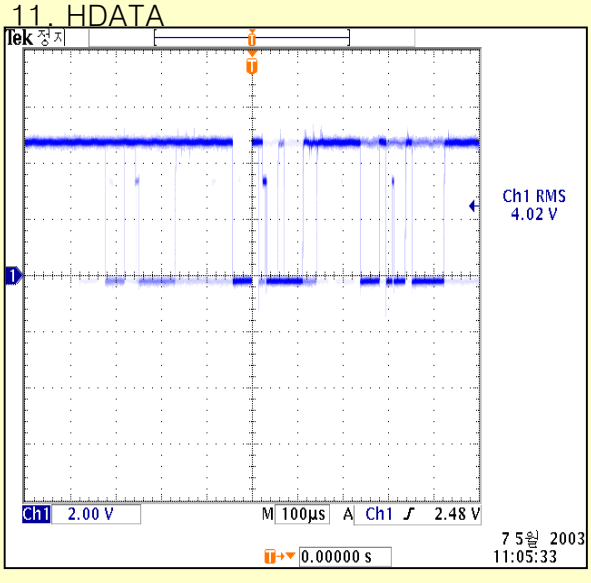
9. HFS



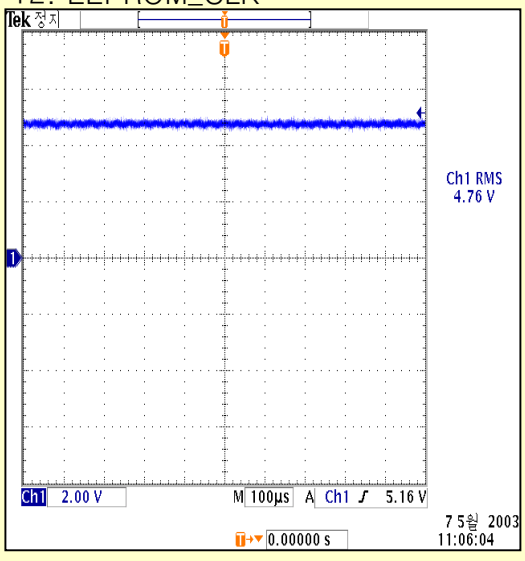
10. HCLK



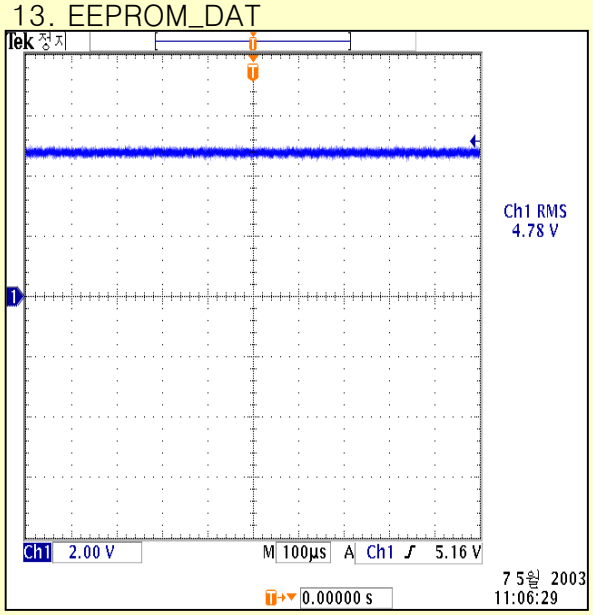
11. HDATA



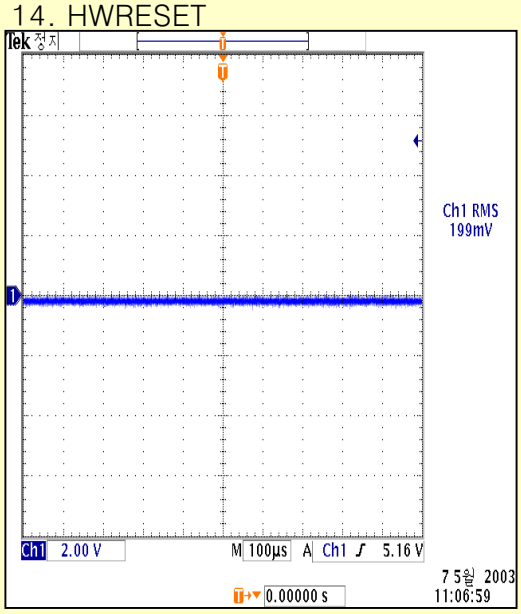
12. EEPROM_CLK



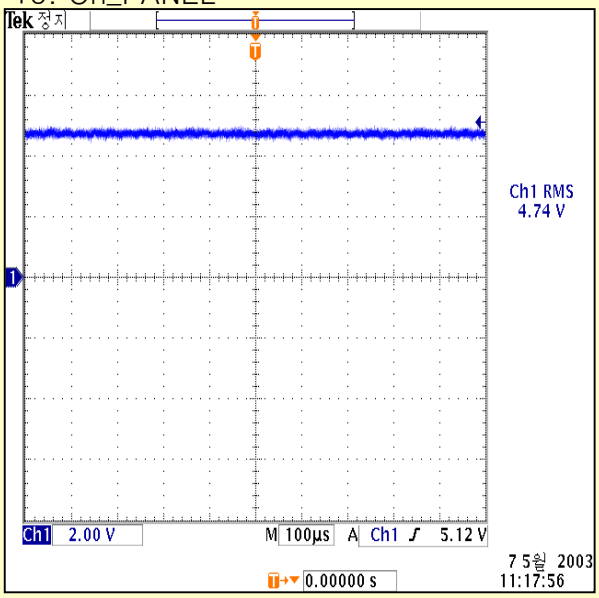
13. EEPROM_DAT



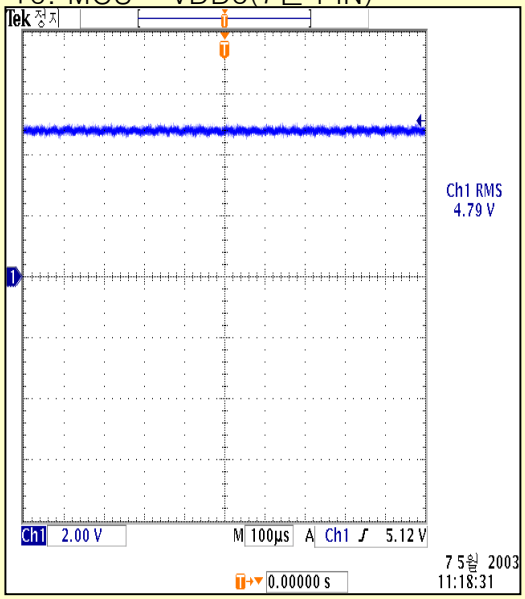
14. HWRESET

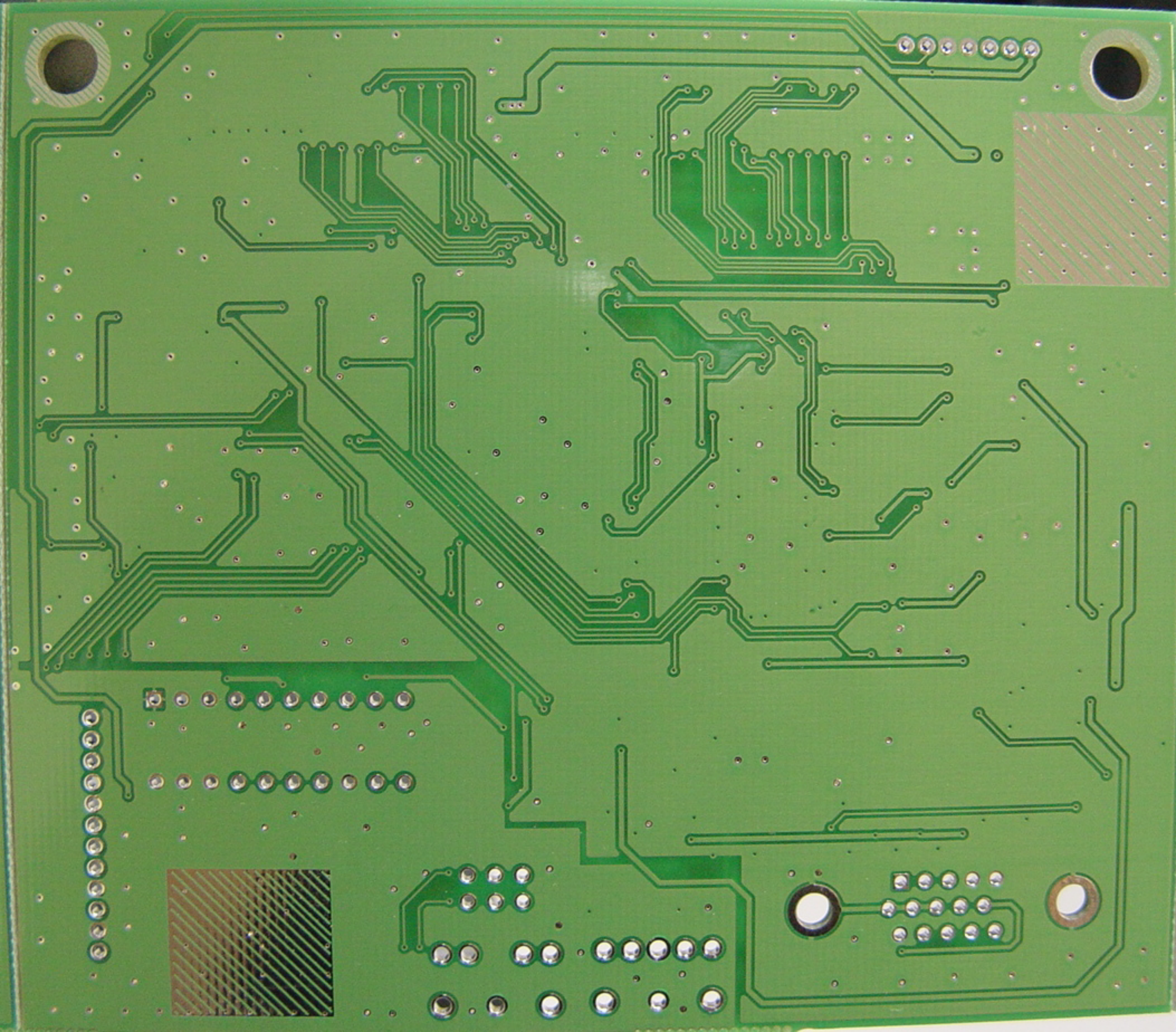


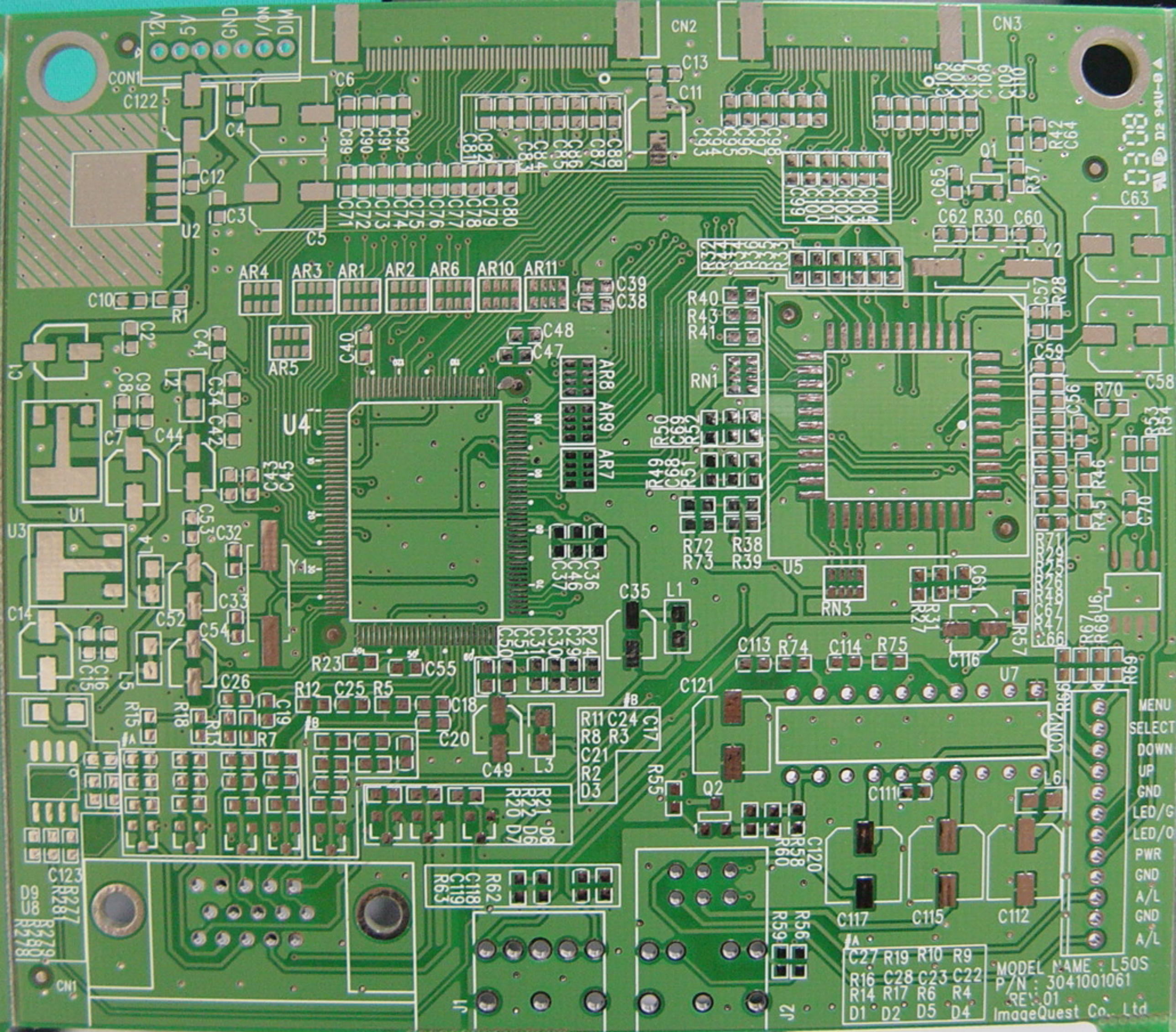
15. On_PANEL

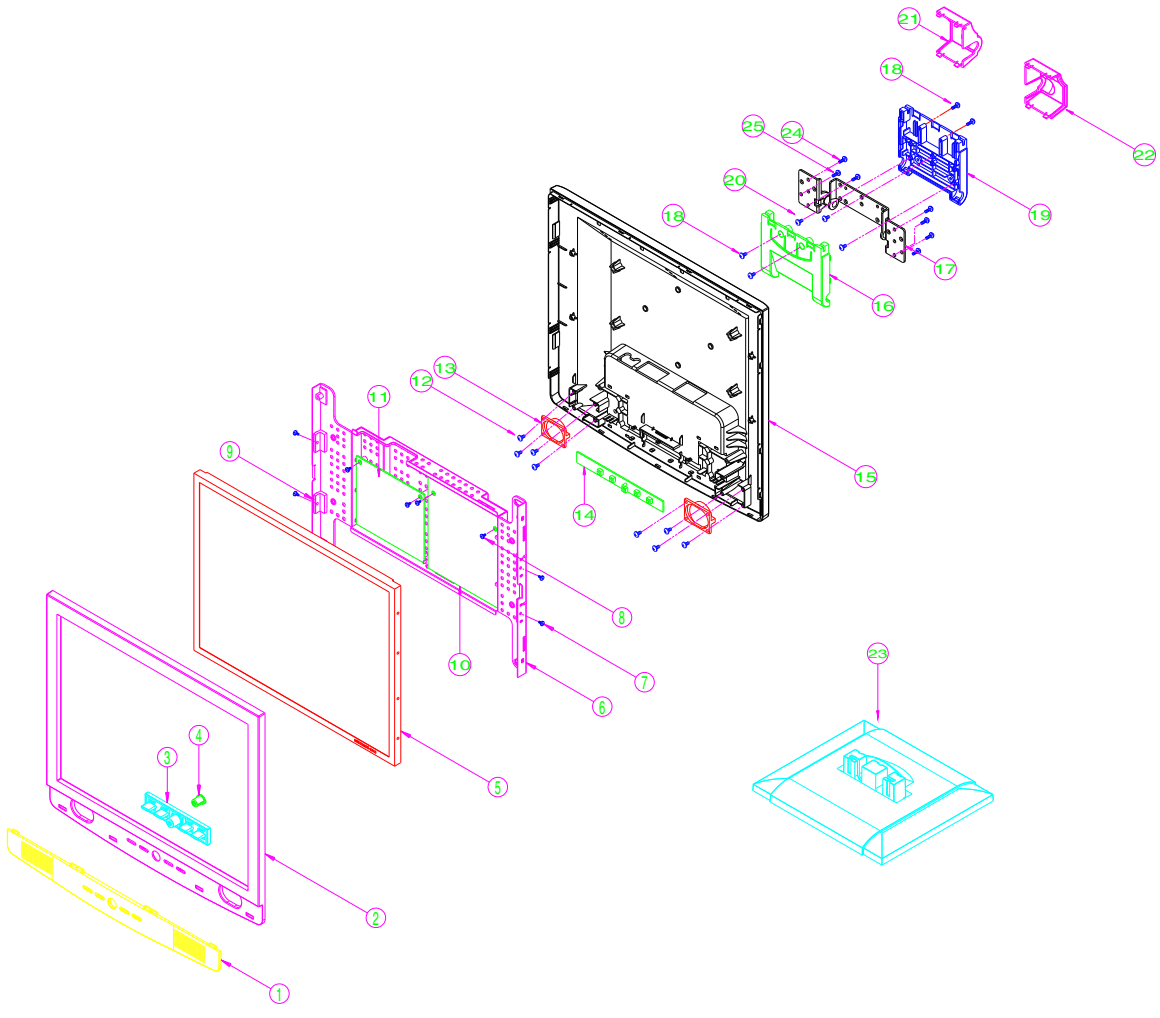


16. MCU – VDD5(7번 PIN)






12V
5V
GND
I/ON
DIM
CON1
CN2
CN3
MENU
SELECT
DOWN
UP
GND
LED/G
LED/O
PWR
GND
A/L
GND
A/L
MODEL NAME : L50S
P/N : 3041001061
REV:01
ImageQuest Co. Ltd



NO	PART NO	PART NAME	DESCRIPTION	QT'Y	REMARK
25	5001000194	SCREW	SCR-MC,MC4X10	2	
24	5001000208	SCREW	SCR-MC,MC4X12	4	
23	62013190	STAND BASE	ABS 94 HB	1	
22	62013186	HINGE CAP L	ABS 94 HB	1	
21	62013187	HINGE CAP R	ABS 94 HB	1	
20	5004000192	SCREW	SCR-TT,MC3X6	3	
19	62013188	STAND FRONT	ABS 94 HB	1	
18	5004000190	SCREW	SCR-TT,MC3X8	4	
17	6115025100	HINGE ASSY		1	
16	62013189	STAND REAR	ABS 94 HB	1	
15	62013204	COVER REAR	ABS 94 HB	1	
14	3010700826	CONTROL PCB ASSY		1	
13	3550100115	SPEAKER L/R		1	
12	5004000197	SCREW	SCR-TT,MC3X10	8	
11	E4208422911	MAIN PCB ASSY		1	
10	3610200114	PWR-INV. PCB ASSY		1	
9	62230876	PANEL SPACE AU	ABS 94 HB	4	
8	5001000666	SCREW	SCR-MC,BIN+MC3X5	4	
7	5001000579	SCREW	SCR-MC,BIN+MC3X8	4	
6	61012208	MAIN FRAME	EGI T=0.8	1	
5	3330500255	LCD M150XN05 AU		1	AUO
4	62200857	LENS LED	PMMA	1	
3	62152407	KNOB TACT	ABS 94 HB	1	
2	62013202	COVER FRONT	ABS 94 HB	1	
1	62013203	COVER PANEL	ABS 94 HB	1	

DRAWN BY	PLANNED BY	CHECKED BY	APPROVED BY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN ㎜ (INCHES) TOLERANCES ARE: LINEAR ± ANGLES ± RADII UNLESS NOTED±	ANGLE 3rd	TITLE	REV
J.S.WOO '03.02.27		J.J.LEE '03.02.27	J.S.KIM '03.02.27		SCALE N/S	EXPLODED VIEW	00
IMAGEQUEST				MDL L50S BRAND	SIZE A2	DWG NO.	SHEET 1/1
				REF NO.			

TAMP 03-2 FILE NAME : EXPLODED VIEW